



CHAIRMAN OF THE JOINT CHIEFS OF STAFF MANUAL

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CJCSM 3170.01A

12 March 2004

OPERATION OF THE JOINT CAPABILITIES INTEGRATION AND DEVELOPMENT SYSTEM

Reference: See Enclosure H

1. Purpose. This manual sets forth guidelines and procedures for operation of the Joint Capabilities Integration and Development System (JCIDS) regarding the development and staffing of JCIDS documents in support of reference a.
2. Cancellation. CJCSM 3170.01, 24 June 2003, "Operation of the Joint Capabilities Integration and Development System."
3. Applicability. In accordance with references a and b, this manual applies to the Joint Staff, Services, combatant commands, Defense agencies and joint and combined activities. It also applies to other agencies preparing and submitting JCIDS documents in accordance with references a, b and c.
4. Summary. Guidance on the conduct of JCIDS analyses, the development of key performance parameters and the JCIDS staffing process are provided in this manual. This manual also contains procedures and instructions regarding the staffing and development of Initial Capabilities Documents, Capability Development Documents, Capability Production Documents, and Capstone Requirements Documents.
5. Releasability. This manual is approved for public release; distribution is unlimited. DOD components (to include the combatant commands), other Federal agencies, and the public may obtain copies of this manual through the Internet from the CJCS Directives Home Page--
http://www.dtic.mil/cjcs_directives. Copies are also available through the Government Printing Office on the Joint Electronic Library CD-ROM.

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6. Effective Date. This manual is effective upon receipt.



RICHARD B. MYERS
Chairman
of the Joint Chiefs of Staff

Enclosure(s):

A -- Joint Capabilities Integration and Development System (JCIDS)

Analysis Process

B -- Performance Attributes and Key Performance Parameters (KPP)

C -- Document Staffing, Validation, and Approval Process

D -- Initial Capabilities Document (ICD)

E -- Capability Development Document (CDD)

F -- Capability Production Document (CPD)

G -- Capstone Requirements Document (CRD)

H -- References

GL -- Glossary

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ENCLOSURE A

JOINT CAPABILITIES INTEGRATION AND DEVELOPMENT SYSTEM (JCIDS)
ANALYSIS PROCESS

1. JCIDS Analyses. The JCIDS analysis process is composed of a structured, four-step methodology that defines capability gaps, capability needs and approaches to provide those capabilities within a specified functional or operational area. Based on national defense policy and centered on a common joint warfighting construct, the analyses initiate the development of integrated, joint capabilities from a common understanding of existing joint force operations and doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) capabilities and deficiencies. While a JCIDS analysis may be initiated by any number of organizations, to include combatant commanders and Functional Capability Board (FCB) Working Groups, this analysis needs to be teamed as early as possible with a sponsor. The term “sponsor” as used in this document is broadly applied to describe this collaborative effort between the analytical author of the analysis and the organization that will eventually lead the funding of any resulting materiel solutions. The assistance and advice of appropriate FCB Working Groups should be sought out as early as possible during analysis to facilitate the collaborative effort across many organizations. The sponsor initiated JCIDS analyses provide the necessary information for the development of the Initial Capabilities Document (ICD). Figure A-1 depicts the JCIDS analysis process.

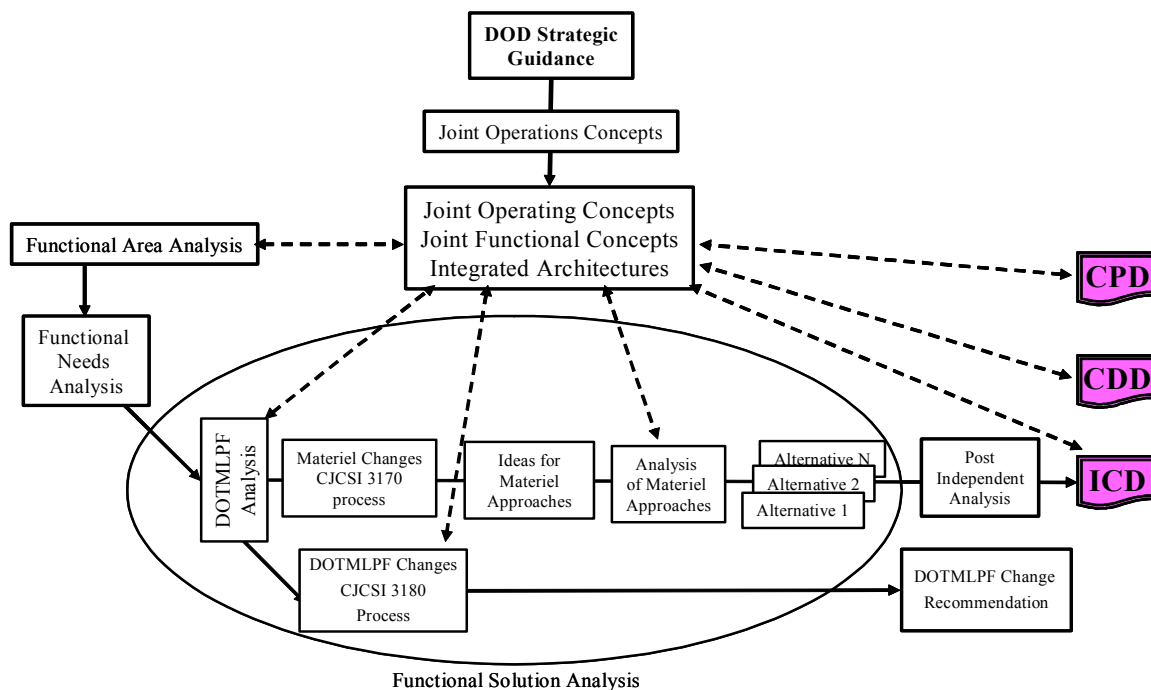


Figure A-1. JCIDS Analyses

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2. Functional Area Analysis (FAA). The first step in the JCIDS analysis begins when the sponsor leads performance of an FAA. An FAA identifies the operational tasks, conditions and standards needed to achieve military objectives. It uses the national strategies, Joint Operating Concepts (JOC), Joint Functional Concepts (JFC), Joint Integrating Concepts (JIC), Integrated Architectures (as available), the Universal Joint Task List (UJTL), and the anticipated range of broad capabilities that adversaries might employ as input. Its output is the tasks to be reviewed in the follow-on functional needs analysis. The FAA includes cross-capability and cross-system analysis in identifying operational tasks, conditions and standards. The FAA should be conducted as a collaborative effort.

a. These tasks should be submitted to DIA to enable production of an Initial Threat Warning Assessment (ITWA). The ITWA will identify adversarial capabilities that could specifically affect a capability being identified.

b. Contact the Defense Intelligence Agency's (DIA) Defense Warning Office, Acquisition Support Division for assistance (DSN 428-4526; JWICS: <http://www.dia.ic.gov/homepage/homepages/ta2/homepage.htm>; SIPRNET: <http://www.dia.smil.mil/homepage/homepages/homepage.htm>).

3. Functional Needs Analysis (FNA). The FNA is the second step of the JCIDS analysis process. The sponsor leads the FNA. It assesses the ability of the current and programmed joint capabilities to accomplish the tasks that the FAA identified, under the full range of operating conditions and to the designated standards. Using the tasks identified in the FAA as primary input, the FNA produces as output a list of capability gaps or shortcomings that require solutions, and indicates the time frame in which those solutions are needed. The FNA should accomplish the following:

a. Describe the capability gap, overlap or problem in operational and/or broad effects-based terms. It will include consideration of gaps or problems identified in combatant commander issues and Integrated Priority Lists (IPL). Future adversarial threat capabilities and scientific and technological developments as depicted in the ITWA will be considered.

b. Describe what additional functional areas may be involved in the problem or solution.

c. Describe the key attributes of a capability or capabilities that would resolve the issue in terms of purpose, tasks and conditions. This description should address the elements of time, distance, effects and obstacles to overcome. Link the discussion to the UJTL, adjusting for situations not covered within the UJTL. These descriptions will enable the development of measures of effectiveness (MOE).

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d. Identify the Joint Requirements Oversight Council (JROC) approved functional area metrics, as derived from the integrated architectures (as available), which the proposed capability improves or degrades. If integrated architectures do not yet exist for this functional area, propose appropriate metrics.

4. Functional Solution Analysis (FSA). The FSA is the third step of the JCIDS analysis process. The sponsor leads the FSA. It is an operationally based assessment of potential DOTMLPF approaches to solving (or mitigating) one or more of the capability gaps (needs) identified in the FNA. The needs identified in the FNA are inputs to the FSA. The FSA's outputs are potential solutions to needs, including in order of priority: integrated DOTMLPF changes; product improvements to existing materiel or facilities alone; adoption of interagency or foreign materiel solutions that have limited non-materiel DOTMLPF consequences; and finally, new materiel starts that have limited non-materiel DOTMLPF consequences.

a. DOTMLPF Analysis. The first analysis in the FSA is to determine whether an integrated DOTMLPF approach can fill the capability gaps identified in the FNA. If the sponsor determines that the capability can be partially or completely addressed by an integrated DOTMLPF approach, the sponsor will coordinate with the appropriate Department of Defense (DOD) component to take action through the process outlined in reference d. If the sponsor determines that a materiel approach is required, an Initial Capabilities Document (ICD) will be developed. Routinely, capability proposals will involve combinations of DOTMLPF changes and materiel changes. These proposals will also continue through the FSA process as described below.

b. Ideas for Materiel Approaches. The expertise of the entire Department and other resources should be engaged to identify materiel approaches to provide the required capabilities. The collaborative nature of this effort is meant to develop potential solutions in an integrated fashion that reflect the future requirements of joint force commanders. The process should leverage the expertise of all government agencies, as well as industry, in identifying possible materiel approaches. It should always include existing and future materiel programs that can be modified to meet the capability need. The integrated DOTMLPF implications of any proposed materiel solution will always be considered throughout the process.

c. Analysis of Materiel Approaches (AMA). The AMA will determine the best materiel approach or combination of approaches to provide the desired capability or capabilities. The AMA will determine the best way(s) to use materiel approach(s) to provide a joint capability. Generally, it will not consider which specific "systems" or "system components" are the best. For example, the AMA may determine that a capability is best satisfied by an unmanned aerial vehicle (UAV) with a bomb vice approaches employing submarine

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launched missiles, artillery or air launched missiles. The AMA will not assess the best alternatives for UAVs or bombs. That analysis will occur in an analysis of alternatives (AoA) after the ICD is approved.

(1) The sponsor will collate the information obtained during the FAA, the FNA, the DOTMLPF analysis and the ideas for materiel approaches. At this point, a number of approaches may be available to provide the desired capabilities. In this case, the sponsor, with support from the Joint Staff, J-8, Capabilities and Acquisition Division (CAD) and the appropriate Functional Capability Board (FCB) Working Groups, will determine whether to submit the information to an appropriate research agency (such as a Federally Funded Research and Development Center) for independent analysis or to conduct the AMA itself. An independent analysis may be required to provide an objective review that serves the capability needs of the joint force.

(2) The AMA will consider the capability gap, the specified range of military operations, the conditions under which they must be performed and other factors that are relevant to support of JFCs and integrated architectures.

(3) The AMA will determine how well the proposed materiel approaches address the identified capability gaps and provide the desired effects. The materiel approaches may include a family of systems (FoS) or system of systems (SoS) that take different approaches to filling the capability gap, each addressing operational considerations and compromises in a different way. The approaches shall include the overarching DOTMLPF changes necessary to meld the FoS and SoS into an effective capability. The FoS and SoS materiel approaches may require systems delivered by multiple sponsors and materiel developers.

(4) The product of the AMA is a prioritized list of materiel approaches (or combinations of approaches) ranked by how well each provides the desired capabilities. The prioritized list will consider technological maturity, technological risk, supportability and the affordability of each approach using the best data available in the pre-ICD process. The AMA will also assess the operational risk associated with each approach. It will also consider the integrated DOTMLPF implications of each approach, to the extent that those implications can be identified. Finally, it will consider the overall impact of the proposed materiel approach on the functional and cross-functional areas. The AMA must:

(a) Confirm the nature of the capability or broad-based effect(s) to be provided, when the capability is required, and the applicable operational environment. This capability confirmation must include a rough assessment of the sustainability/supportability of the end item system or system of systems.

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(b) Examine the ability of the identified ideas for materiel approaches to provide the desired capability or capabilities under the conditions specified.

(c) Evaluate the delivery time frame for each approach.

1. For approaches that use existing capabilities or capabilities that are already scheduled for delivery, examine how the delivery of the proposed capability ties in to the existing program.

2. For new materiel approaches, evaluate when a useful capability could be delivered to the warfighter through the use of existing technology.

3. For approaches based on FoS and SoS solutions, evaluate the necessity to synchronize the development of systems and integrated DOTMLPF considerations across sponsors and materiel developers.

4. Evaluate when a new or increased capability could be delivered by bringing together existing or new systems in new ways.

(d) Identify technologies that, if matured, would provide a more effective approach in the future.

(e) Examine additional approaches, as required. Conduct market research to determine if commercial items or nondevelopmental items are available to meet the desired capability, or could be modified to meet the desired capability. If market research indicates commercial or nondevelopmental items are not available to satisfy the need, re-evaluate the need and determine whether it can be restated to permit commercial or nondevelopmental items to satisfy the required capability.

5. Post Independent Analysis. The final step in the JCIDS FSA analysis process is the post independent analysis. In this step, the sponsor will consider the compiled information and analysis results to determine which integrated DOTMLPF approach or approaches best address the joint capability gap(s) in the functional area. This information will be compiled into an appropriate recommendation--either a DOTMLPF change recommendation or an ICD.

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ENCLOSURE B

PERFORMANCE ATTRIBUTES AND KEY PERFORMANCE PARAMETERS

1. Performance Attributes and KPPs. The Capability Development Document (CDD) and Capability Production Document (CPD) state the operational and support-related performance attributes of a system(s) that provide the capabilities required by the warfighter – attributes so significant they must be verified by testing or analysis. The CDD and CPD identify the attributes that contribute most significantly to the desired operational capability in threshold-objective format. Whenever possible, attributes should be stated in terms that reflect the capabilities necessary to operate in the full range of military operations and the environment intended for the system, family of systems (FoS), or system of systems (SoS). These statements will guide the acquisition community in making tradeoff decisions between the threshold and objective values of the stated attributes. Operational testing will assess the ability of the system(s) to meet the production threshold values.

a. Each attribute will be supported by an operationally oriented rationale, including operational effectiveness and suitability. Below the threshold value, the military utility of the system(s) becomes questionable. In an evolutionary acquisition, it is expected that threshold values will generally improve between increments. Different attributes may come into play as follow-on increments deliver additional capability. An attribute may apply to more than one increment. The threshold and objective values of an attribute may differ in each increment. DOD Components will, at a minimum, budget to achieve all stated thresholds.

b. The objective value for an attribute is the desired operational goal, beyond which any gain in utility does not warrant additional expenditure. Advances in technology or changes in joint concepts and integrated architectures may result in changes to objective values in future increments.

c. The attributes and their supporting rationale should reflect analytical insights identified in integrated architectures (as available). As a minimum, supporting analyses should include: the analysis of alternatives (AoA) for potential Acquisition Category I programs; the cost-schedule-performance tradeoffs analysis; the capability cost tradeoffs analysis; the results of experimentation, testing, and evaluation; the life-cycle supportability and affordability analysis; lessons learned during the System Development and Demonstration (SDD) phase; and user feedback on fielded production increments.

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d. KPPs are those system attributes considered most essential for an effective military capability. The CDD and the CPD contain only those few KPPs (generally eight or fewer) that capture the minimum operational effectiveness and suitability attributes needed to achieve the overall desired capabilities for the system(s) during the applicable increment. Failure to meet a CDD or CPD KPP threshold may result in a reevaluation, reassessment or termination of the program, or a modification of the content of production increments.

e. A Net-Ready KPP (NR-KPP) will be developed for all Information Technology and National Security Systems (IT and NSS) that are used to enter, process, store, display or transmit DOD information, regardless of classification or sensitivity, except those that do not communicate with external systems, including Automated Information Systems in accordance with references h, i, and j.

f. Embedded training functionality will be designated a KPP when deemed essential to achieving/maintaining operational proficiency.

g. The following questions should be answered in the affirmative before a performance attribute is selected as a KPP:

- (1) Is it essential for defining the required capabilities?
- (2) Does it contribute to significant improvement in warfighting capabilities?
- (3) Is it achievable and affordable?
- (4) Is it measurable and testable?
- (5) Is the attribute supported by analysis?
- (6) Is the sponsor willing to consider canceling or significantly restructuring the program if the attribute is not met?

h. A KPP will normally be a rollup of a number of supporting attributes that may be traded off to deliver the overall performance required. The following is one methodology for developing KPPs:

- (1) Step 1: List required capabilities for each mission or function as described in the CDD or CPD. This review should include all requirements mandated by all applicable integrated architectures under which the CDD/CPD falls. Until integrated architectures are available, Capstone Requirements Documents (CRD) may be used to frame desired capabilities.
- (2) Step 2: Prioritize these capabilities.

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(3) Step 3: For each mission/function, build at least one measurable performance attribute.

(4) Step 4: Determine the attributes that are most critical to the system(s) and designate them as KPPs. (Note: A KPP need not be created for all missions and functions for the system(s). In contrast, certain missions and functions may require two or more KPPs.)

(5) Step 5: Document how the KPPs are responsive to the integrated architectures (when available) or the applicable CRD requirements.

i. Threshold and objective values of an attribute may change between the CDD and the CPD. The CDD attribute values are used to guide the acquisition community during SDD (see reference c for acquisition phases for DOD space programs). During SDD, tradeoffs are made between the threshold and objective values to optimize performance attributes, given the available technology for the increment and the competing demands introduced by combining subsystems into the overall system. After design readiness review, these tradeoff decisions are essentially completed and a more precise determination of acceptable performance can be stated in the CPD.

(1) For illustration, Figure B-1 (a) depicts an attribute (A) of a system with threshold and objective values determined during technology development

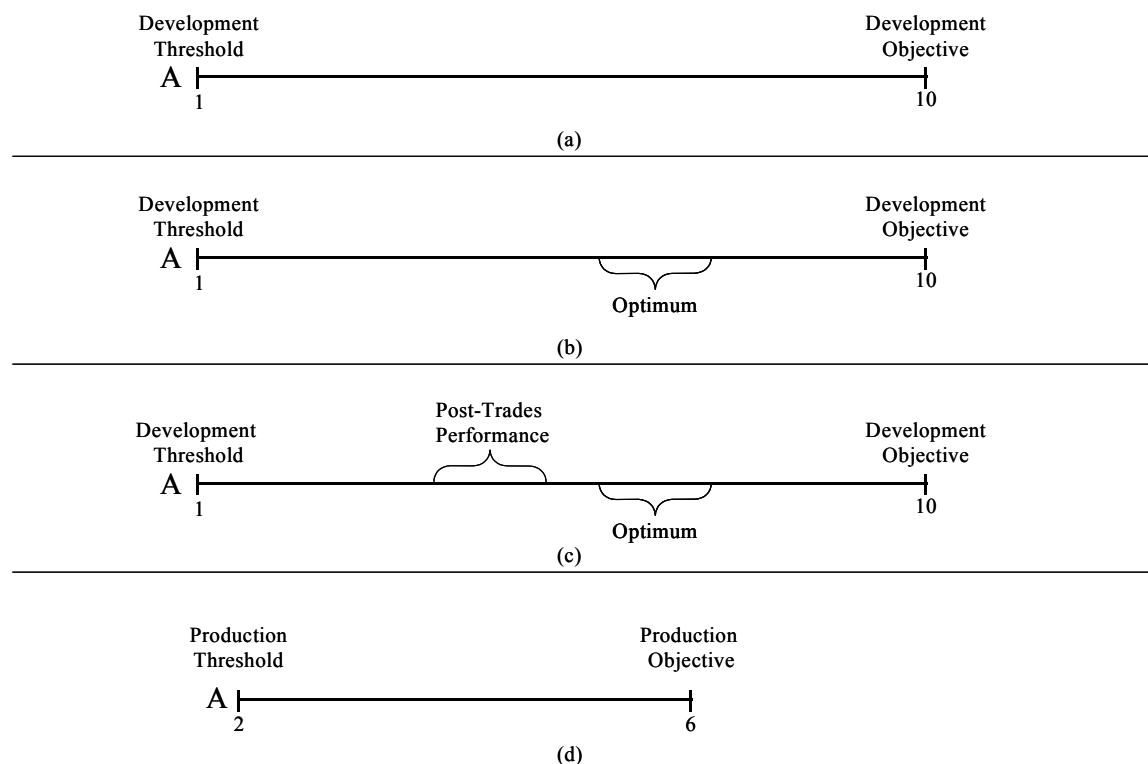


Figure B-1 (a), (b), (c) & (d). CDD and CPD Attributes

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and presented in the CDD. Figure B-1 (a) shows attribute A with a threshold value of 1 and an objective value of 10. During SDD, optimum performance values may be developed for each attribute (or some attributes) on the basis of cost, performance or other considerations, as shown in Figure B-1 (b).

(2) Further design tradeoffs among the collective attributes may necessitate settling for design performance values other than the optimum individual values. These values may be higher or lower than the optimum values for the individual attributes. Figure B-1 (c) shows an example in which optimum performance was traded off because of other considerations, resulting in reduced performance within attribute A.

(3) The production threshold and objective values specified for the attribute in the CPD will be a refined version of the development threshold and objective values documented in the CDD. Figure B-1 (d) shows an example of the revised performance attributes that would be included in the CPD. Each production threshold value should be determined on the basis of manufacturing risk and risk imposed by other related attributes. KPP and non-KPP threshold values in the CPD are generally expected to be equal to or better than the corresponding CDD threshold values. There may be cases, however, where CDD KPP and/or non-KPP threshold values are reduced in a CPD. When this occurs, the following questions must be answered in the CPD:

(a) Will the capability still provide sufficient military utility?

(b) If the new capability will replace a fielded capability, will it still provide more overall military utility than the fielded capability?

(c) Is this capability still a good way to close the capability gap or should this approach be abandoned in favor of another materiel or non-materiel alternative?

(4) When a CDD KPP threshold is lowered in a CPD, the validating authority must be informed before the CPD is approved.

(5) For an early increment in an evolutionary acquisition, the production objective value for the increment could be less than the development objective value.

2. Net-Ready KPP. IT and NSS interoperability is defined in reference i as “the ability of systems, units or forces to provide data, information, materiel and services to and accept the same from other systems, units or forces and to use the data, information, materiel and services so exchanged to enable them to operate effectively together. IT and NSS interoperability includes both the technical exchange of information and the end-to-end operational effectiveness of that exchanged information as required for mission accomplishment.” A NR-KPP is based on the information exchange of the proposed system(s) and is

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derived from integrated architectures, whenever possible, as defined in reference i.

a. The NR-KPP threshold and objective values are documented in CDDs, CPDs and CRDs. The NR-KPP should reflect both the information needs of the capability under consideration and the needs of appropriate supported systems. They should cover all communication, computing and electromagnetic spectrum requirements involving the exchange of products and services between sender and producer and receiver and consumer for the successful completion of the warfighter mission, business process or transaction. These products and services include any geospatial intelligence and environmental support the system(s) needs to meet operational capabilities. The NR-KPP identified in CDDs and CPDs will be used later in the Information Support Plan (ISP), (see reference e), to identify support required from outside the program.

b. To ensure a balance of risks and gains, information assurance (IA) capabilities must be developed and integrated concurrently with capabilities for interoperability for any system(s) considered an asset of the Global Information Grid (GIG), in accordance with reference f. IA is defined as the information operations that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality and non-repudiation. It includes restoration through protection, detection and reaction capabilities. IA capabilities apply to all DOD systems that are used to enter, process, store, display or transmit DOD information, regardless of classification or sensitivity, except those that do not communicate with external systems.

3. System Compatibility and Interoperability. There are other types of compatibility and interoperability (e.g., databases, fuel, transportability, ammunition) that might need to be identified for a capability. Other performance attributes, apart from the NR-KPP, may be developed to fulfill the unique materiel needs of the capability.

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ENCLOSURE C

JCIDS STAFFING PROCESS

1. Process Overview

a. The process of obtaining validation and approval of JCIDS documents begins with the submission of a document to the Knowledge Management/Decision Support (KM/DS) tool (see Figure C-1). The staffing process continues until the document is validated and approved. The details of the process are presented below. The KM/DS tool will be used by DOD Components to submit documents and comments for O-6 and flag reviews, search for historical information, and track the status of documents. The web site for KM/DS is <https://siprweb1.js.smil.mil/pls/jrcz>.

b. Services and other organizations conducting JCIDS analyses may generate ideas and concepts leading to ICD, CDD, CPD, CRD (if directed by the Joint Requirements Oversight Council [JROC]) and integrated DOTMLPF change recommendations. JCIDS initiatives may also be generated within a Functional Capabilities Board (FCB) as a result of analyses conducted in its support. As the initiative develops into proposed DOTMLPF or materiel solutions to provide desired capabilities, an FCB may request that a Service or Component sponsor the initiative. Further development of the proposal would then become the responsibility of the sponsor.

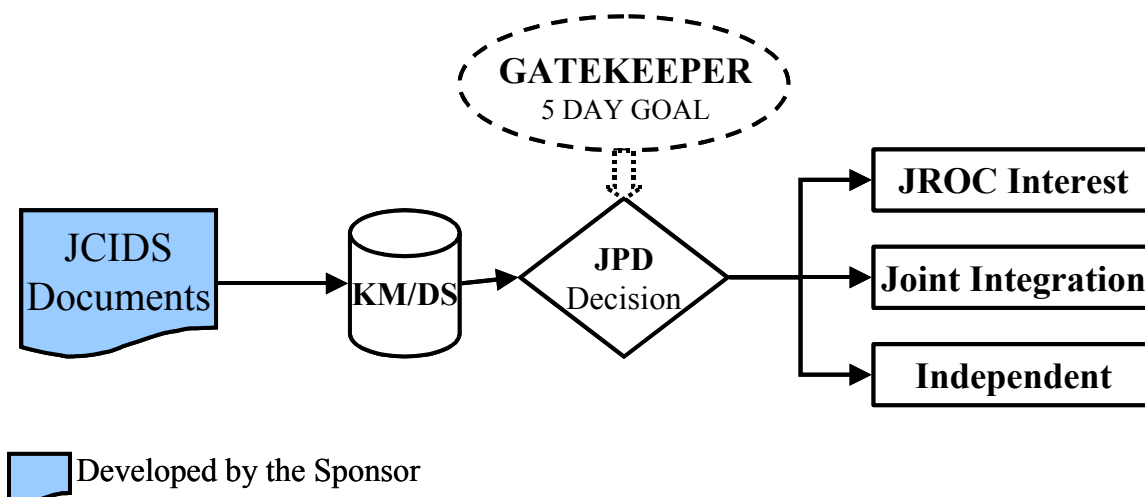


Figure C-1. Gatekeeping Process

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(1) Document Submission. All JCIDS documents (ICDs, CDDs, CPDs, and CRDs) will be entered in the KM/DS tool by the sponsoring Component. The document will be subjected to DOD Component O-6 level staffing and coordination. The document will be forwarded with a cover letter identifying the document, date, any schedule drivers, classification, and working-level points of contact. An executive summary of the analysis supporting the development of the document and the specific analysis used in the determination of CDD and CPD key performance parameters (KPP) also will be provided with the draft document. All documents will be signed out by the sponsoring organization at the 3-star level (or equivalent capability oversight council) as a minimum prior to presentation to the JCB/JROC for validation and approval. All documents undergoing the review process are considered draft until after JROC validation/approval, as appropriate.

(a) Format. The submission will be an electronic copy in Microsoft Word version 6.0 or higher.

(b) Documents classified Secret and below transmitted electronically and retained as a permanent JCIDS record must be accurately and completely marked in accordance with reference g.

(c) Documents for highly sensitive classified programs will be transmitted in a hard copy form to the Joint Staff, J-8, Capabilities and Acquisition Division, in accordance with appropriate classification guidelines and handling procedures. Approved documents will be retained in accordance with approved storage and handling procedures for each program.

(2) Submission of the document to the KM/DS tool will trigger the gatekeeper process to determine whether the document has joint implications or is Component unique.

c. The Gatekeeper. The Joint Staff, Vice Director, J-8, is the gatekeeper of the JCIDS process. The Gatekeeper, with the assistance of US Joint Forces Command (USJFCOM), J-7, FCB Working Group leads, J-8, Capabilities and Acquisition Division (CAD), and J-6I Interoperability Division, will evaluate all JCIDS documents.

(1) JCIDS documents will be submitted for Gatekeeper review to determine whether the proposal affects the joint force. Gatekeeper review will be conducted for each document upon initial submission of each document, regardless of acquisition category (ACAT), previous delegation decisions or previous JPD decisions. This designation will not be revisited for subsequent submission of the same document, unless a recommendation for change is made by the lead FCB. The Gatekeeper review of capability documents that are successors to previously designated documents will be advised by this precedent.

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(2) Based on the content of the submission, the Gatekeeper will assign a JPD of JROC Interest, Joint Integration, or Independent to the ICD, CDD, CPD or CRD. The Gatekeeper will assign the document to a lead FCB for further assessment, and may designate other FCBs to support the process. The Gatekeeper may also direct that the submission be handled as a DOTMLPF change recommendation developed in accordance with reference d based on the significant DOTMLPF implications of the proposal.

(a) The JROC Interest designation will apply to all ACAT I/IA programs and ACAT II and below programs where the capabilities have a significant impact on joint warfighting. This designation may also apply to intelligence capabilities that support DOD and national intelligence requirements. All JROC Interest documents will receive threat validation, IT and NSS interoperability and supportability (references h, i, and j), intelligence, and/or munitions certifications as required. These documents will be staffed through the JROC for validation and approval. All CRDs will receive the designation of JROC Interest.

(b) The Joint Integration designation will apply to ACAT II and below programs in which the concepts and/or systems associated with the document do not significantly affect the joint force, for which an expanded review is not required, but threat validation, IT and NSS interoperability and supportability (references h, i, and j), intelligence, and/or munitions certifications are required. Once the required certifications are completed, the proposal may be reviewed by the FCB. Joint Integration proposals are validated and approved by the sponsoring Component.

(c) The Independent designation will apply to ACAT II and below programs in which the concepts and/or systems associated with the document do not significantly affect the joint force, an expanded review is not required, and no certifications are required. Once designated Independent, the FCB may review the proposal. These documents are returned to the sponsoring Component for validation and approval.

(3) The Joint Staff J-8, using the KM/DS tool, will maintain a database of JCIDS documents processed through the gatekeeper function. The database will include the JPD, the FCBs having equity in the proposal, and the lead FCB for the proposal. The database will help the Gatekeeper ensure consistency of staffing as JCIDS proposals progress through the JCIDS process. DOTMLPF change recommendations will be processed in accordance with reference d.

(4) Once the JPD has been assigned, the document will move into the staffing and approval process. Table C-1 lists the organizations that will typically be asked to staff and comment on any JCIDS document based on the assigned JPD. Acquisition community review will be tailored to the cognizant Acquisition Executive's portfolio.

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Table C-1. Staffing Matrix

Office	JROC Interest	Joint Integration	Independent
Army	X	X	S
Navy	X	X	S
Air Force	X	X	S
Marine Corps	X	X	S
Joint Staff	X/C	C	
FCB Working Groups	L/S	L/S	L/S
Combatant Commanders	X	X	S (SOCOM)
Other DOD Components	AR	AR	AR
USD(AT&L)	AER	AER	
USD(I)	AER	AER	
USecAF (Space MDA)	AER	AER	AER
ASD(NII)/CIO	AER	AER	
DOT&E	X	AR	
D, PA&E	X	AR	
DIA	C	C	
DISA	X	AR	
NGA	X	AR	
NSA	X	AR	
NRO	X	AR	
MRB	AER	AER	

AR = As Required Coordination

AER = Acquisition Executive Review

L/S = lead/supporting

S = Sponsor Coordination Only

X = Required Coordination

C = Certification

2. Certifications. Required certifications will be processed as part of the staffing process for each JCIDS document. If a certification authority determines that the content is insufficient to support a required certification, it is the sponsor's responsibility to resolve the issue with the certification authority. If resolution cannot be achieved, the sponsor may request review of the issue by higher authority as described below.

- a. Threat Validation and Intelligence Certification – (DIA/J-2).

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(1) Threat Validation. For all JROC Interest and Joint Integration ICDs, CDDs, CPDs and CRDs, the Defense Intelligence Agency (DIA)/J-2 will provide validation of threat information appropriate to the proposal. DOD Components may validate intelligence information for programs designated as Independent proposals using DIA-validated threat data and/or data contained in DOD Service Intelligence Production Program products and data.

(2) Intelligence Certification. DIA/J-2 will provide intelligence certification as part of the JCIDS staffing of ICDs, CDDs, CPDs, and CRDs regardless of ACAT level, for those programs that consume, produce, process or handle intelligence data. DIA/J-2 will assess intelligence support needs for completeness, supportability and impact on joint intelligence strategy, policy, and architectural planning. The DIA/J-2 certification will also evaluate intelligence handling and intelligence-related information systems with respect to open systems architecture, interoperability and compatibility standards.

(3) Unresolved Intelligence Issues. Unresolved intelligence issues will be forwarded by DIA/J-2 to the lead and supporting FCBs for resolution.

(4) Information Support Plans (ISP). J-2 will assess the intelligence needs, deficiencies, and solutions documented in the ISPs in accordance with references e and j.

b. Insensitive Munitions Certifications and Waivers – (J-4).

(1) Insensitive Munitions. The Joint Staff J-4 will certify that all CDDs and CPDs for munitions, regardless of ACAT level, contain the requirement to conform to insensitive munitions (unplanned stimuli) criteria. At a minimum, these CDDs and CPDs will contain the statement, “Munitions used in this system will be designed to resist insensitive munitions threats (unplanned stimuli).”

(2) Insensitive Munitions Waiver Requests. Insensitive munitions waiver requests require approval by the JROC. Insensitive munitions waiver requests shall include a Component or agency approved insensitive munitions plan of action and milestones to identify how future purchases of the same system or future system variants will achieve incremental and full compliance. Waiver requests will be submitted to J-4 for review, then forwarded to the JROC Secretariat in conjunction with JCIDS staffing for JROC consideration.

c. IT and NSS Interoperability and Supportability Requirements Certification – (J-6).

(1) The Joint Staff J-6 will certify all CRDs, CDDs and CPDs designated as JROC Interest or Joint Integration for conformance with joint IT and NSS policy and doctrine, and compliance with integrated architectures (as available) and interoperability standards in accordance with references h and j.

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(2) J-6 will review and comment on the IT and NSS NR-KPP. J-6 will coordinate IT and NSS issues concerning JCIDS documents with the appropriate agencies, in accordance with reference h and as directed by references i and j. J-6 will also certify the IT and NSS interoperability and supportability requirements in the CDD and CPD in accordance with reference h.

(3) The J-6 will forward the IT and NSS interoperability certification to the FCB (for programs designated as JROC Interest) or to the sponsoring DOD component (for other programs).

(4) Unresolved interoperability issues will be forwarded to the Military Communications Electronics Board (MCEB) for resolution. The MCEB will ensure that issues resulting from interoperability assessments that they cannot resolve are delivered to the FCB, reviewed by the DOD CIO and presented to the JROC for resolution, regardless of the document's JPD.

3. Staffing Process. The J-8, CAD, will staff all JROC Interest proposals before FCB review and Joint Integration proposals for certification, as depicted in Table C-1 and Figure C-2. Concurrent staffing of ICDs, CDDs and CPDs is not permitted. An ICD must complete Flag staffing and comment resolution before any subsequent CDDs or CPDs can be submitted for staffing. The same rule applies for CDDs prior to CPD staffing. During the review process, the organizational staffs of FCB members will evaluate how well the proposed solution documented in a CRD, ICD, CDD or CPD addressed the capability needs identified in the JCIDS analyses. This process will include O-6 and flag level reviews.

a. O-6 Review. J-8, CAD will review and verify the document's format for accuracy and completeness. For O-6 level review, J-8 will distribute the draft document using the KM/DS tool after the Gatekeeper assigns a JPD and lead and supporting FCBs. The suspense date will normally be 25 calendar days from the transmittal date. This review will include the Stage I initial threat validation and intelligence, munitions insensitivity and IT and NSS interoperability and supportability requirements certifications, as required. It is understood that the O-6 level review is not the final organizational position. Flag-level endorsement of O-6 level comments is not desired. Comments should be prioritized as critical, substantive or administrative (see definitions in Enclosure GL). Convincing support for critical and substantive comments will be provided in a comment/justification format.

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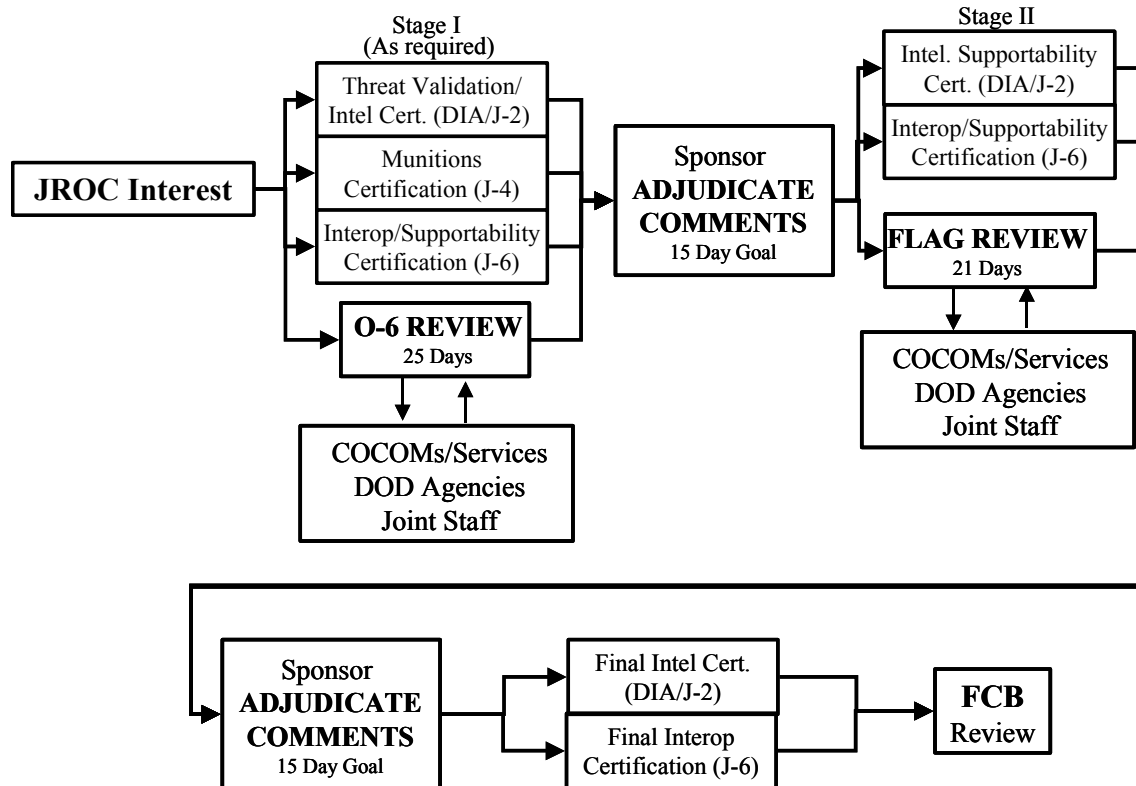


Figure C-2. JROC Interest Staffing Process

b. Adjudication of O-6 Comments. J-8, CAD will compile and forward all comments to the sponsoring DOD Component via KM/DS for resolution. After revision of the document to reflect O-6 level review comments, the sponsor will return it to J-8, CAD via KM/DS for Flag-level review. The sponsor will provide a comment resolution matrix delineating the critical and substantive comments, the results of the intelligence and munitions supportability certifications received during O-6 level review, and the actions taken. Unresolved comments will be brought to the FCB Working Group for assistance in resolution. For ease of review, all changes to the document should be highlighted.

c. FCB Working Group Assessment. The FCB Working Group may begin an assessment immediately after the Gatekeeper actions are complete. The sponsor will work with the lead FCB Action Officer to present the document to the Working Group as early as possible to allow a full and rigorous independent assessment of the submitted document and supporting analysis (FAA, FNA, FSA, AoA, ETC.). The sponsor and Working Group will resolve all issues or submit those they cannot resolve to the FCB.

d. Flag-Level Review. The Flag-level review is conducted in the same manner as the O-6 level review. The only difference is the rank of the official approving the review comments. This review will include Stage II threat validation and intelligence and munitions insensitivity supportability

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certifications, as required. For Joint Integration documents, this Stage II staffing will be accomplished at the O-6 level. The suspense date assigned for providing comments and/or concurrence will normally be 21 calendar days from transmittal date.

e. Adjudication of Flag Comments and Briefing Preparation. Upon completion of Flag-level review, J-8, CAD, will forward all comments to the sponsor via KM/DS for final resolution. Unresolved comments will be brought to the FCB for assistance in resolution. Once the sponsor has incorporated necessary changes into their document and has developed a briefing in accordance with reference k, the sponsor will schedule a briefing to the lead FCB, and will request a JCB/JROC briefing date/time from the JROC Secretariat through KM/DS.

f. Upon submission of the final document for FCB review, the J-6 and DIA/J-2 will review the final document and the adjudicated comment resolution matrix to complete final interoperability and intelligence certifications. Upon satisfactory review, the J-6 will issue the interoperability certification in accordance with reference h, and DIA/J-2 will issue intelligence certification.

g. When the staffing process is complete for JROC Interest documents, the lead FCB will review the results and make a recommendation to the JROC regarding validation/approval of the document, as shown in Figure C-3.

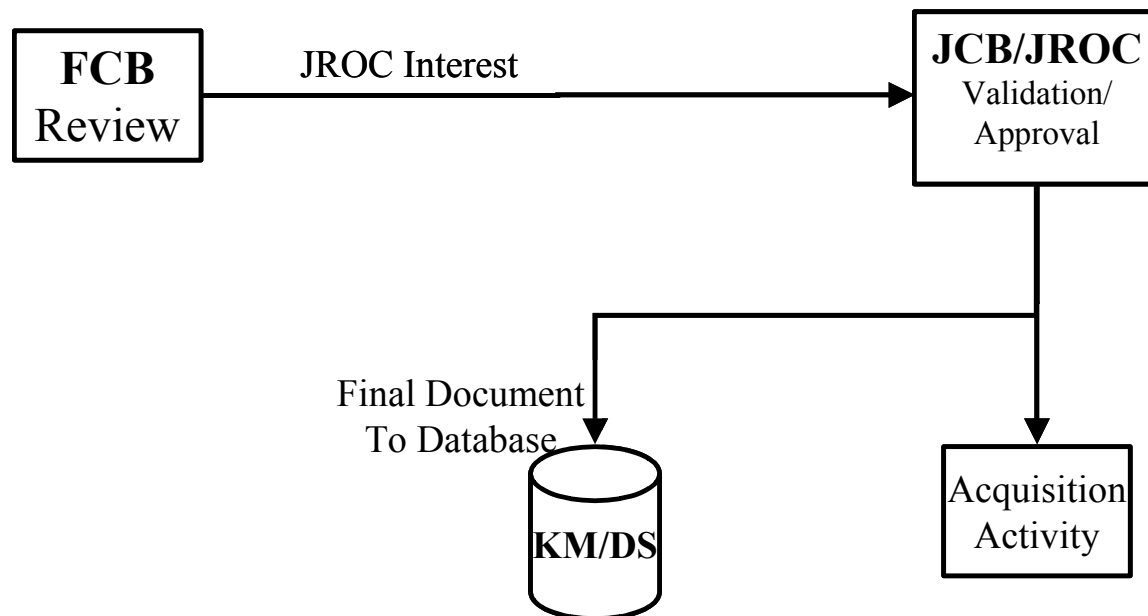


Figure C-3. JROC Interest Validation/Approval

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(1) JROC Interest Documents. The FCB will evaluate and forward the JCIDS documents to the JROC, via the Joint Capabilities Board (JCB), for validation. A representative from the FCB will set the stage for the JCB and JROC decision briefings by framing the proposal in terms of the functional area, the relevant range of military operations, and the timeframe under consideration. The FCB representative will present the FCB's recommendation and any outstanding issues to the JCB and the JROC and the relative priority of the initiative within the FCB's portfolio. The sponsor will then deliver the decision briefing. The JROC will validate and approve the proposal or return it to the sponsor for additional information, as required.

(2) JROC Briefing Format and Schedule. Briefings delivered to the FCB, the JCB, and the JROC will be prepared in accordance with reference k. The sponsor will provide the updated draft document and briefing slides 48 hours before the FCB, JCB, or JROC brief. The sponsor should have any required JROC briefing completed at least 30 days prior to each Milestone review.

(3) Approved Documents. The sponsor will ensure that the approved document is posted to the KM/DS database for future reference and cross-Component harmonization.

h. If a document is assigned a JPD of Joint Integration or Independent, it will move into the validation and approval process as shown in Figure C-4. The FCB may review the document for JPD accuracy and possible joint implications. Following the review, the document will be returned to the Gatekeeper for redesignation if required.

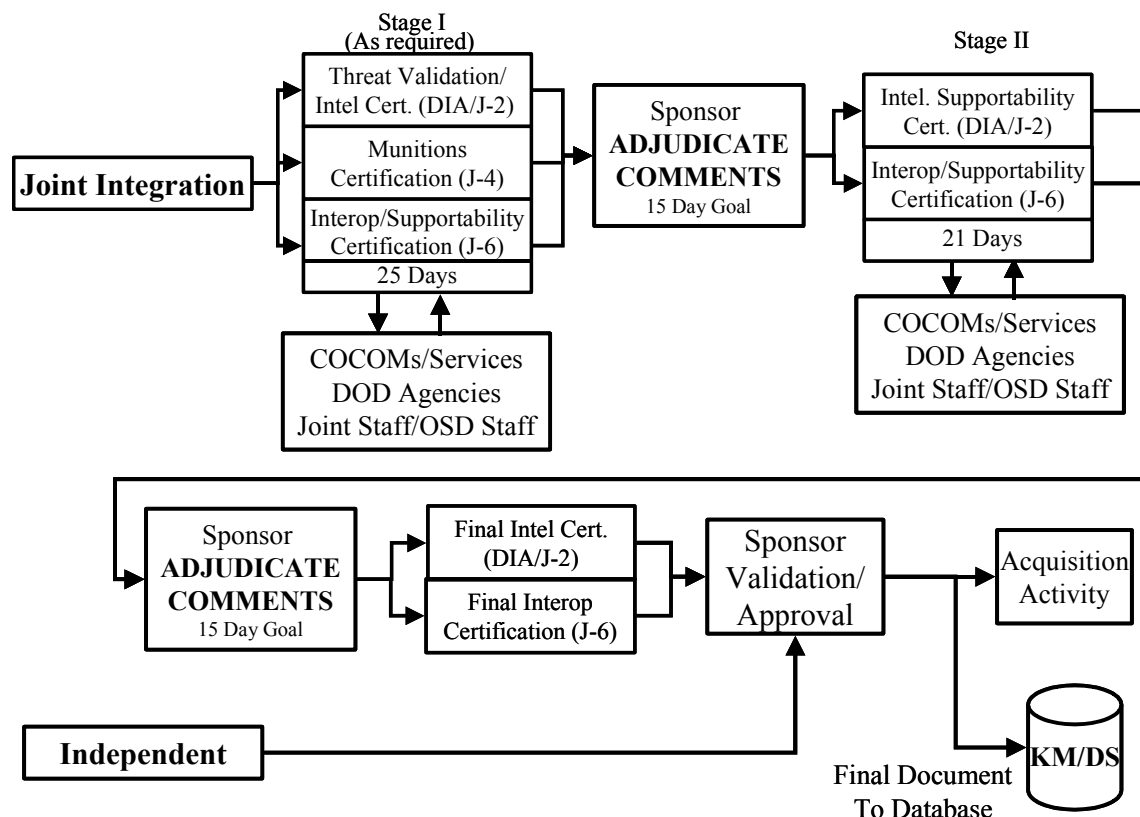


Figure C-4. Joint Integration and Independent Staffing Process

(1) Joint Integration proposals in an ICD, CDD or CPD will be staffed by J-8, CAD through Stage I and Stage II staffing for IT and NSS interoperability and supportability (not applicable for ICDs), munitions, and intelligence certifications. Upon completion of Stage II staffing, the final document and the adjudicated comment resolution matrix will be submitted to J-2 and J-6 for a final Stage III review to receive certification. The certifications may be reviewed by the FCB. The document will then be returned to the sponsor for final validation and approval.

(2) Documents designated as Independent may be reviewed by the FCB. They will be returned to the sponsor for validation and approval.

(3) When Joint Integration and Independent documents are approved, the sponsor will post them to the KM/DS database for future reference and cross-Component harmonization review.

i. The sponsor, Services, or other members of the FCB may appeal the JPD designation through the FCB. The resulting FCB recommendation will be forwarded to the Gatekeeper for resolution.

ENCLOSURE D

INITIAL CAPABILITIES DOCUMENT (ICD)

1. General

a. The ICD describes capability gaps that exist in joint warfighting functions, as described in the applicable Joint Functional Concepts (JFC), Joint Integrating Concepts (JIC), and integrated architectures. The ICD defines the capability gap in terms of the functional area, the relevant range of military operations, and the timeframe under consideration. Table D-1 lists the documents that guide or depend on the development of the ICD. The ICD must capture the results of a well-framed functional analysis, as described in Enclosure A.

Table D-1. ICD Linkage to Program Documents

Predecessor Documents and Information	Dependent Documents
JFCs, JICs, and Integrated Architectures (as available)	Analysis of Alternatives (AoA) Guidance
Capstone Requirements Document(s) (until superseded)	Technology Development Strategy
Defense Intelligence Agency (DIA) Validated Threat Documents	Test and Evaluation Strategy
DIA Initial Threat Warning Assessment	Clinger-Cohen Certification for MAIS and Ships
	Capability Development Document (CDD)
	Capability Production Document (CPD)

b. The ICD summarizes the results of DOTMLPF analysis and identifies any changes in US or allied doctrine, operational concepts, tactics, organization and training that were considered in satisfying the deficiency. The ICD will also describe why such nonmateriel changes have been judged to be inadequate in addressing the complete capability.

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c. The ICD documents the evaluation of balanced and synchronized DOTMLPF approaches that are proposed to provide the required capability. It further proposes a recommended DOTMLPF approach based on analysis of the various possible materiel approaches. Finally, the ICD describes how the recommended approach best provides the desired joint capability and relates the desired capability to the appropriate JOC, JFC, and/or JIC.

d. For ACAT I programs, an ICD will be generated, validated and approved to define and review the options for a new capability in a joint context and to ensure that all DOTMLPF alternatives have been adequately considered, even if the program is proceeding directly to Milestone B or C. The approved ICD will then be forwarded with the associated draft CDD or CPD. For those exceptional cases where ACAT II and below programs may be proceeding directly to Milestone B or C, the sponsor may request a waiver to the requirement for an ICD from the Joint Staff J-8. The waiver request will provide justification for not writing an ICD. Upon approval of the waiver, the sponsor can proceed with submitting a CDD or CPD for approval.

2. ICD Focus. The ICD documents the JCIDS analyses (described in Enclosure A) that describe a capability gap and explains why a recommended materiel approach is most appropriate. The ICD supports the follow-on AoA, if required, the Technology Development Strategy, and the Milestone A acquisition decision (see reference c for DOD space programs).

3. ICD Development and Documentation

a. The ICD guides the Concept Refinement and the Technology Development phases of the acquisition process and supports the Concept Decision and Milestone A acquisition decision (see reference c for DOD space programs).

b. The ICD sponsor will prepare the ICD in coordination/collaboration with the appropriate DOD Components, agencies, FCB Working Groups, Program Analysis and Evaluation (PA&E) (when appropriate), applicable CRD leads and integrated architecture leads. The ICD will include a description of the operational capability, capability gap, threat, shortcomings of existing systems and links to all applicable integrated architectures (as available), the capabilities required for the system(s), program support, force structure, joint DOTMLPF impact and constraints and the schedule and program affordability for the system(s).

c. Draft and approved CDDs, both classified and unclassified, should be carefully marked to indicate whether the document is releasable to allies, industry or the public.

d. The ICD format and detailed content instructions of the ICD are provided in Appendix A of this enclosure.

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4. ICD Validation and Approval. The determination of the validation and approval authorities for the ICD depends on the JPD assigned by the Gatekeeper, as described in Enclosure C.

5. ICD Publication and Archival. Approved ICDs (Secret and below), regardless of ACAT or JPD designation, will be posted to the KM/DS tool, so that all approved JCIDS documents are maintained in a single location.

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APPENDIX A TO ENCLOSURE D
INITIAL CAPABILITIES DOCUMENT FORMAT

CLASSIFICATION OR UNCLASSIFIED

INITIAL CAPABILITIES DOCUMENT
FOR
TITLE

Potential ACAT: _____

Validation Authority: _____

Approval Authority: _____

Milestone Decision Authority: _____

Designation: JROC Interest/Joint Integration/Independent

Prepared for Concept Refinement Decision (or specify other acquisition decision point)

Date

Note: Each subparagraph should be numbered to facilitate correlation and traceability and for ease of identifying issues during staffing. ICDs must be submitted in Microsoft-Word (6.0 or greater) format. All ICDs must be clearly labeled with draft version number and date and include any caveats regarding releasability, even if unclassified. The intent is to share ICDs with allies and industry wherever possible at an appropriate time in the acquisition process. Draft documents will be submitted with line numbers displayed. Architecture products (if available) will be embedded in the Microsoft-Word file for ease of review during the staffing process. Ideally, the body of the ICD should be no more than 10 pages long.

1. Joint Functional Area. Cite the applicable functional area(s), JFCs, the range of military operations, and the timeframe under consideration.
2. Required Capability. Describe the particular aspects of the JFCs that the ICD addresses and explain why the desired capabilities are essential to the joint force commander to achieve military objectives. Reference any CRDs or integrated architectures (when available) that may be applicable to this ICD.
3. Concept of Operations Summary. Describe what mission areas this capability contributes to, what operational outcomes it provides, what affects it must produce to achieve those outcomes, how it compliments the integrated

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joint warfighting force and what enabling capabilities are required to achieve its desired operational outcomes.

4. Capability Gap

a. Describe, in operational terms, the missions, tasks, and functions that cannot be performed or are unacceptably limited. This discussion should also provide the linkage between the required capabilities and the appropriate JOCs, JFCs, JICs, and integrated architectures.

b. Describe, in broad terms, the attributes of the desired capabilities in terms of desired effects. Broad descriptions of desired effects help ensure that the required capabilities are addressed without constraining the solution to a specific, and possibly limited, materiel system.

c. Definitions of the identified capabilities should satisfy two rules.

(1) Rule 1. Capability definitions must contain the required attributes with appropriate measures of effectiveness, e.g., time, distance, effect (including scale) and obstacles to be overcome.

(2) Rule 2. Capability definitions should be general enough so as not to prejudice decisions in favor of a particular means of implementation but specific enough to evaluate alternative approaches to implement the capability.

d. The discussion above should capture the functional area analysis and functional needs analysis described in Enclosure A.

5. Threat/Operational Environment

a. Describe in general terms the operational environment in which the capability must be exercised. Summarize the organizational resources that provided threat support to capability development efforts.

b. Summarize the current and projected threat capabilities (lethal and nonlethal) to be countered. Reference the current DIA validated threat documents and Service intelligence production center approved products or data used to support initial JCIDS analysis. Contact the DIA's Defense Warning Office, Acquisition Support Division for assistance (DSN: 428-4521; SIPRNET: <http://www.dia.smil.mil/admin/di/dwo/POC.shtml> or JWICS: <http://www.dia.ic.gov/admin/di/dwo/Link.shtml>).

6. Functional Solution Analysis Summary. The subparagraphs below should summarize the results of the functional solution analysis as described in Enclosure A.

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a. DOTMLPF Analysis. Summarize the results of the DOTMLPF analysis. Identify any changes in US or allied doctrine, operational concepts, tactics, organization, and training that were considered in satisfying the deficiency. Describe why such nonmateriel changes have been judged to be inadequate in addressing the complete capability.

b. Ideas for Materiel Approaches. If a materiel solution is required to address a capability gap, list the materiel approaches considered during the analysis. This list should leverage the expertise of the Components, laboratories, agencies and industry to provide a robust set of divergent materiel approaches that includes single- and multi-Service, multi-agency, allied and other appropriate FoS or SoS approaches. Indicate potential areas of study for concept refinement. These areas may include the use of existing and future US or allied military or commercial systems, including modified commercial systems or product improvements of existing systems.

c. Analysis of Materiel Approaches (AMA). Summarize how well the proposed materiel approaches address capability gaps, using wherever possible the JROC-approved key attributes and the metrics of the functional area integrated architecture. Address all identified materiel approaches reviewed by the analysis body. The analysis will produce a prioritized list of materiel approaches ranked by how well each provides the capabilities required by the user. To produce the prioritized list, the AMA will consider the integrated architecture approved metrics, technological maturity and the overall impact of the solution on the functional and cross-functional areas. The best materiel approaches may be a combination of materiel and nonmateriel solutions that deliver the desired capability through a FoS/SoS approach. For FoS/SoS approaches, the analysis will identify the impact of synchronization on the approach. Ensure that all aspects of the AMA are addressed as described in Enclosure A.

7. Final Materiel Recommendations. Describe the best materiel approaches based on analysis of the relative cost, efficacy, performance, technology maturity, delivery time frame and risk.

a. Describe the materiel recommendation(s) for further analysis during Concept Refinement and Technology Development. If an evolutionary acquisition approach is recommended, also discuss the minimum capability required to fill the gap described in paragraph 2 of the ICD, in the near term and for the long term. If the program is expected to proceed immediately to a milestone B or C decision, describe the materiel recommendations proposed to be further analyzed during SDD.

b. Describe the key boundary conditions within which the AoA should be performed. These constraints must be crafted to allow reasonable compromise between focusing the AoA and ensuring that the AoA considers novel and

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imaginative alternative solutions. The key boundary conditions must reflect a thorough understanding of the functional and operational areas and the conditions under which the ultimate system(s) must perform.

c. Discuss the nonmateriel/DOTMLPF implications and constraints of the recommended materiel approach or approaches.

Mandatory Appendices

Appendix A. Integrated Architecture Products. Include the required Architecture Framework View Products developed, whenever possible, from integrated architectures. Formatting instructions are provided in reference 1.

- Mandatory: OV-1
- Others as desired
- Note: Include only those architectural views not presented in the document.

Appendix B. References

Appendix C. Acronym List

Other Appendices or Annexes. As required to provide supporting information not included in the body of the ICD.

ENCLOSURE E

CAPABILITY DEVELOPMENT DOCUMENT (CDD)

1. General

a. The CDD is the sponsor's primary means of defining authoritative, measurable and testable capabilities needed by the warfighters to support the SDD phase of an acquisition program. Table E-1 lists the types of documents that precede or depend on the CDD. The CDD is guided by the integrated architecture (as available), applicable CRD, the ICD, the AoA (if applicable) and the technology development strategy. The CDD captures the information necessary to deliver an affordable and supportable capability using mature technology within a specific increment of an acquisition strategy. The CDD will be validated and approved before Milestone B (see reference c for DOD space programs). The CDD will be validated and approved prior to program initiation for shipbuilding programs.

Table E-1. CDD Linkage to Program Documents

Predecessor Documents and Information	Dependent Documents
Joint Operating Concepts (JOC), Joint Functional Concepts (JFC), and Joint Integrating Concepts (JIC)	Acquisition Program Baseline (APB) for Milestone B of the current increment
ICD	Cost Analysis Requirements Description
Technology Development Strategy	Clinger-Cohen Certification (Updated for Milestone B for Major Automated Information Systems)
System Threat Assessment	Acquisition Strategy
CRDs (until superseded)	Test and Evaluation Master Plan
AoA Results	DD Form 1494 (required to obtain spectrum certification)
Integrated Architectures (as available)	Information Support Plan (ISP)
Complete automated system profile as required in reference h	Independent Cost Estimate

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b. In an evolutionary acquisition program, the capabilities delivered by a specific increment may provide only a part of the ultimate desired capability; therefore, the first increment's CDD must provide information regarding the strategy for achieving the full capability. Subsequent increments, leading to the full capability, are also described to give an overall understanding of the program preliminary approach. CDDs for subsequent increments will update the overall approach to reflect lessons learned from previous increments, changes in the JOCs, JFCs, JICs, or integrated architectures, and other pertinent information. Additionally, the AoA should be reviewed for its relevance for each program to each CDD increment and, if necessary, the AoA should be updated or a new one initiated.

c. The CDD provides the operational performance attributes necessary for the acquisition community to design a proposed system(s) and establish a program baseline. It states the performance attributes, including KPP that will guide the development and demonstration of the proposed increment. The performance attributes and KPPs will apply only to the proposed increment. If the plan requires a single step to deliver the full capability, the KPPs will apply to the entire system(s). Each increment must provide an operationally effective and suitable capability in the intended mission environment that is commensurate with the investment, and independent of any subsequent increment.

d. The CDD articulates the attributes that may be further refined in the CPD. It states the essential attributes of a program, including affordability and supportability, from the warfighter's perspective. The CDD shall be updated or appended for each Milestone B decision.

e. The CDD addresses a single system only, although it may refer to any related systems needed in a FoS or a SoS approach necessary to provide the required capability. When the ICD recommends a materiel approach consisting of a FoS or SoS, each individual system will have its own CDD. There may be cases where the Validation Authority decides it is appropriate to use a combined CDD to describe highly interdependent systems that provide the capability using a SoS. When it is necessary to synchronize development of systems to ensure delivery of a capability, the CDD will identify the source ICDs and the related CDDs and CPDs. For example, a program addressing a capability shortfall may require two unique or separate systems to provide the required capability (e.g., a bomb and an UAV). Conversely, there are also cases where related but different capabilities can be included in one CDD. For example, the development of a multi-mission aircraft could be captured in a single CDD.

f. Care must be taken to stabilize and not over specify attributes. Only the most significant attributes should be designated as KPPs. To supply the

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necessary performance attributes, the program manager will develop system-level details in technical documentation.

2. CDD Focus. The CDD specifies the attributes of a system in development. These will provide or contribute to the operational capabilities that are inserted into the performance section of the acquisition strategy and the APB. All CDD KPPs are inserted verbatim into the APB. MOE and suitability, developed for the initial Test and Evaluation Master Plan (TEMP) at Milestone B, are based on the CDD (the TEMP is not due until Key Decision Point C for DOD space programs, see reference c).

3. CDD Development and Documentation

a. The CDD is generated prior to Milestone B of the acquisition process. It describes a technologically mature and affordable increment of a militarily useful capability that was demonstrated in an operationally relevant environment. The CDD will support entry into SDD and refinement of integrated architectures (see reference c for DOD space programs).

b. The CDD sponsor will apply lessons learned during the Technology Development phase, plus any other appropriate risk reduction activities, military utility assessments, market research, experimentation, test and evaluation, capability and schedule tradeoffs and affordability and supportability analysis in the development of the CDD.

c. The CDD sponsor, in coordination and collaboration with the appropriate DOD Components (including the MDA designated developer), agencies, FCB Working Groups, and applicable CRD leads, will prepare the CDD. The CDD sponsor also will collaborate with sponsors of other CDDs/CPDs that are required in FoS/SoS solutions, particularly those generated from a common ICD. In some of these cases it may be appropriate to develop annexes for the CDD. The annexes would describe excursions from the CDD to meet other sponsors specific capability needs. The annexes do not repeat information already contained in the CDD, but only describe the changes. The CDD will include a description of the operational capability; threat; links to all applicable integrated architectures (as available); required capabilities; program support; supportability; force structure; DOTMLPF impacts and constraints; and schedule and program affordability for the system.

d. CDD development should leverage off related analysis and development with the associated Information Support Plan (ISP) required by reference j. As required capabilities are developed, the output from the information needs discovery process (reference j) should help develop the required architecture products and to identify the elements of required program support for inclusion in the CDD.

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e. Draft and approved CDDs, both classified and unclassified, should be carefully marked to indicate whether the document is releasable to allies, industry or the public.

f. The CDD format and detailed content instructions are provided at Appendix A of this enclosure.

4. CDD Validation and Approval. The determination of the validation and approval authorities for the CDD depends on the JPD assigned by the Gatekeeper (as described in Enclosure C).

a. The JROC will review, validate and approve JROC Interest CDDs. In addition, the JROC may, at its discretion, review CDDs at any time deemed appropriate.

(1) The JROC may retain approval authority over JROC Interest CDDs (i.e., no changes of any kind allowed without consent of the JROC) or may delegate approval authority for non-KPP changes to a component. JROC review of JROC Interest CDDs is required any time a recommendation is made to change a KPP.

(2) Delegation of approval authority for JROC Interest CDDs allows the designated lead component, in coordination with other appropriate DOD Components, to make non-KPP tradeoffs between acquisition milestones for the specific increment without JROC approval. Delegation of approval authority will not usually be granted beyond a single increment in an evolutionary acquisition.

b. Joint Integration and Independent CDDs will be validated and approved by the sponsoring component.

5. Certifications. JROC Interest CDDs will receive intelligence; munitions; and IT and NSS interoperability and supportability certifications (in accordance with Enclosure C), prior to JROC validation. Joint Integration CDDs also will receive these certifications and may be assessed by the FCB Working Group and reviewed by the FCB before they are returned to the sponsoring component for validation and approval. Independent CDDs do not require certification and may be assessed by the FCB Working Group and reviewed by the FCB and then returned to the sponsor for validation and approval.

6. Formal CDD Staffing. The first step in obtaining validation and approval is the formal review of the document. The staffing process is described in Enclosure C. Supporting documentation, such as AoA results, ICD and any additional previously approved documents, should be made available electronically for inclusion in the package. If an AoA has not been conducted, an explanation and an electronic copy of whatever alternative analysis has been performed (or planned) will be made available or attached.

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7. CDD Review and Revalidation. The CDD is refined and updated when necessary and before the Milestone B decision for each increment. This update will incorporate the results of the activities during the acquisition phase (i.e., cost, schedule, and performance tradeoffs, testing and lessons learned from previous increments).

a. Two options are available for second (and follow-on) increment CDDs. If the follow-on increment is consistent with the strategy described in previous CDDs and the only changes are to the capabilities provided by the new increment (described in paragraph 5 of the CDD), an addendum to the previous CDD may be validated and approved, as appropriate. If the increment contains significant revisions to the overall strategy, the capabilities provided by the next or future increments, or other information beyond changes to paragraph 5, an appropriately revised complete CDD should be submitted.

8. CDD Publication and Archival. Approved CDDs (Secret and below), regardless of ACAT or JPD designation, will be posted to the KM/DS tool, so that all approved JCIDS documents are maintained in a single location.

9. System Capabilities. The CDD identifies, in threshold-objective format, the attributes that contribute most significantly to the desired operational capability as discussed in Enclosure B. These attributes will be used to guide the acquisition community in making tradeoffs between the threshold and the objective levels of the stated attributes. When an attribute's values change in follow-on increments, the CDD should include the values for previous increments for reference purposes.

10. Key Performance Parameters (KPP). The KPP threshold and objective values are based on results of efforts and studies that occur prior to Milestone B, including the Technology Development phase (if applicable). Each selected KPP should be directly traceable to the most critically needed attributes of capabilities defined in the ICD. The CDD should contain only those few KPPs (generally eight or fewer) that capture the attributes needed to achieve the overall desired capabilities for the system(s). Failure to meet a CDD KPP threshold can be cause for reevaluation of the system selection, reassessment or termination of the program, or modification of the content of production increments.

a. CDD KPPs are inserted verbatim into the performance section of the APB. A Net-Ready KPP (NR-KPP) will be a mandatory KPP in every increment for programs that exchange information.

b. CDD Appendix A should document how its KPPs are responsive to applicable CRD requirements and KPPs. For CRDs to be effective, it is essential that all CRD sponsors review all related JROC Interest and Joint Integration CDDs and CPDs for applicability to the FoS or SoS addressed by

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the CRD. This support is important because CDD/CPD authors cannot in all cases be expected to understand the full impact and scope of every CRD. Refer to reference h for guidance on the recommended format for this crosswalk.

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APPENDIX A TO ENCLOSURE E

CAPABILITY DEVELOPMENT DOCUMENT FORMAT

CLASSIFICATION OR UNCLASSIFIED

CAPABILITY DEVELOPMENT DOCUMENT

FOR

TITLE

Increment: _____

ACAT: _____

Validation Authority: _____

Approval Authority: _____

Milestone Decision Authority: _____

Designation: JROC Interest/Joint Integration/Independent

Prepared for Milestone B Decision (or specify other acquisition decision point)

Date

Note: Each subparagraph should be numbered to facilitate correlation and traceability and for ease of identifying issues during staffing. CDDs must be submitted in Microsoft Word (6.0 or greater) format. The (SV-6) should be provided as a separate file in Microsoft Excel format for ease of importation into analysis tools. All CDDs must be clearly labeled with draft version number, increment, and date and must include any caveats regarding releasability, even if unclassified. The intent is to share CDDs with allies and industry wherever possible at an appropriate time in the acquisition process. Draft documents will be submitted with line numbers displayed. Architecture products (if available) will be embedded in the Microsoft Word file for ease of review during the staffing process. Ideally, the body of a CDD for complex systems should be no more than 35 pages long.

Executive Summary (2 pages maximum)

Revision History

Table of Contents (with list of tables, figures, and appendices)

Points of contact

1. Capability Discussion. Cite the applicable ICD and provide an overview of the capability gap in terms of mission area, relevant range of military operations, and the timeframe under consideration. Describe the capability that the program delivers and how it relates to applicable JOCs, JFCs, JICs, and integrated architectures. Discuss how the current increment contributes to the required capability.

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- a. Discuss the operating environment of the system.
 - b. If the CDD is part of a FoS or SoS solution, identify the source ICD and discuss the related CDDs, CPDs, integrating DOTMLPF changes and required synchronization.
 - c. Cite any additional previously approved JCIDS documents pertaining to the proposed system.
2. Analysis Summary. Summarize the analysis, that is AoA or other support analysis conducted. Include the alternatives, objective, the criteria, assumptions, recommendation and conclusion. Complete detailed documentation of the analysis conducted shall be an attachment.
 3. Concept of Operations Summary. Describe what mission areas this capability contributes to, what operational outcomes it provides, what affects it must produce to achieve those outcomes, how it compliments the integrated joint warfighting force and what enabling capabilities are required to achieve its desired operational outcomes.
 4. Threat Summary. Summarize the projected threat environment and the specific threat capabilities to be countered. Include the nature of the threat, threat tactics, and projected threat capabilities (both lethal and nonlethal) over time. Programs designated as ACAT I/ID (or potential ACAT I/ID) must incorporate DIA-validated threat references. All other programs may use Service intelligence center approved products and data. Summarize the organizational resources that provided threat support to capability development efforts. Contact the DIA's Defense Warning Office, Acquisition Support Division for assistance (DSN: 428-4521; SIPRNET: <http://www.dia.smil.mil/admin/di/dwo/POC.shtml> or JWICS: <http://www.dia.ic.gov/admin/di/dwo/Link.shtml>).
 5. Program Summary. Provide a summary of the overall program strategy for reaching full capability and the relationship between the increment addressed by the current CDD and any other increments of the program. The timing of delivery of each increment is important. Carefully address the considerations (e.g., technologies to be developed, other systems in a FoS or SoS, inactivation of legacy systems) that are driving the incremental delivery plan. For follow-on increments, discuss any updates to the program strategy to reflect lessons learned from previous increments, changes in JOCs, JFCs, JICs, or integrated architectures, or other pertinent information. In addition, provide an update on the acquisition status of previous increments.

6. System Capabilities Required for the Current Increment.

a. Provide a description of each attribute, and list each attribute in a separate numbered subparagraph. Include a supporting rationale for the capability and cite any analytic references. When appropriate, the description should include any unique operating environments for the system. Provide any additional information that the program manager should consider.

b. Present each attribute in output-oriented, measurable and testable terms. For each attribute, provide a threshold and an objective value. The program manager will use this information to provide incentives for the developing contractor or to weigh capability tradeoffs between threshold and objective values. Expressing capabilities in this manner enables the systems engineering process to develop an optimal product. If the objective and the threshold values are the same, indicate this by including the statement "Threshold = Objective."

c. Provide tables summarizing specified KPPs and additional performance attributes in threshold – objective format, as depicted below. Also provide a general discussion of the additional performance attributes.

Table X.X. Example Key Performance Parameter Table

Key Performance Parameter	Development Threshold	Development Objective
KPP 1	Value	Value
KPP 2	Value	Value
KPP 3	Value	Value

Table X.X. Additional Attributes

Attribute	Development Threshold	Development Objective
Attribute	Value	Value
Attribute	Value	Value
Attribute	Value	Value

d. Develop the CDD NR-KPP, in accordance with the procedures described in references h and j, from the integrated architecture (as available) and/or appropriate CRDs.

7. Family of System and System of System Synchronization. In FoS/SoS solutions, the CDD sponsor is responsible for ensuring that related solutions, specified in other CDDs and CPDs, remain compatible and that the development is synchronized. These related solutions should tie to a common

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ICD. The CDD sponsor is also responsible for ensuring that the CDD accurately captures the desired capabilities described in applicable CRDs.

a. Discuss the relationship of the system described in this CDD to other systems contributing to the capability(s). Discuss any overarching DOTMLPF changes, which are required to make the FoS/SoS an effective military capability.

b. Provide a table that briefly describes the contribution this CDD makes to the capabilities described in the applicable ICDs and the relationships to other CDDs and CPDs that also support these capabilities. For these interfaces to be effective, it is essential the CDD sponsor review all related JROC Interest and Joint Integration ICDs, CDDs and CPDs for applicability to the FoS or SoS addressed by this CDD.

Table X-X. Supported ICDs and Related CDDs/CPDs

Capability	CDD Contribution	Related CDDs	Related CPDs
ICD Capability Description #1	Brief description of the contribution made by this CDD	CDD Title	CPD Title
ICD Capability Description #2	Brief description of the contribution made by this CDD	CDD Title	CPD Title

c. Each CDD, in Appendix A, will include a crosswalk to the applicable CRDs. The CDD does not need to specify an attribute as a KPP simply because an applicable CRD specifies it as a KPP. Rather, the CDD must show how the attributes specified in the CDD are responsive to applicable CRD standards and KPPs. This includes showing how the attributes support the NR-KPP of the CRD(s) in accordance with references h and j.

8. Information Technology and National Security Systems (IT and NSS) Supportability. For systems that receive or transmit information, provide an estimate of the expected bandwidth and quality of service requirements for support of the capability (on either a per-unit or an aggregate basis, as appropriate). For the CDD this will be a very rough order of magnitude estimate (full details will be provided later by the program manager in the CPD and ISP). This description must explicitly distinguish the IT and NSS support to be acquired as part of this program from IT and NSS support to be provided to the acquired system through other systems or programs.

9. Intelligence Supportability. For programs that produce, consume, process or handle intelligence data, requirements for intelligence support must be

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addressed as the basis for the intelligence certification discussed in Enclosure C. Identify, as specifically as possible, all projected requirements for intelligence products, information or services (throughout all acquisition phases) to include required performance, descriptive or qualitative attributes. Demonstrate that security considerations, such as classification levels and releasability requirements, have been addressed. Contact DIA/J-2 Intelligence Requirements Certification Office (J2P/IRCO) for assistance (DSN 225-4693/1999/8085, SIPRNET <http://www.dia.smil.mil/intel/j2/j2p/irco/main.html> or JWICS http://j2irco.dia.ic.gov/irco/certification_process.html).

10. Electromagnetic Environmental Effects (E3) and Spectrum Supportability.

Describe the electromagnetic environment in which the system must operate and coexist with other US, allied, coalition, government and nongovernment systems. Identify potential issues regarding E3 interference from threat emitters. For systems that communicate via electromagnetic energy, spectrum certification is necessary to ensure adequate access to the electromagnetic spectrum.

11. Assets Required to Achieve Initial Operational Capability (IOC). Describe the types and initial quantities of assets required to attain IOC. Identify the operational units (including other Services or government agencies, if appropriate) that will employ the capability, and define the initial asset quantities (including initial spares and training and support equipment, if appropriate) needed to achieve IOC.

12. Schedule and IOC/Full Operational Capability (FOC) Definitions. Define what actions, when complete, will constitute attainment of IOC and FOC of the current increment. Specify the target date for IOC attainment.

13. Other Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) Considerations. Discuss any additional DOTMLPF implications associated with fielding the system that have not already been addressed in the CDD. Highlight the status (timing and funding) of the other DOTMLPF considerations. Describe, at an appropriate level of detail, the key logistics criteria, such as system reliability, maintainability, transportability and supportability that will help minimize the system's logistics footprint, enhance mobility and reduce the total ownership cost. Detail any basing needs (forward and main operating bases, institutional training base, and depot requirements). Specify facility, shelter, supporting infrastructure, environmental quality compliance, safety and occupational health requirements and the associated costs and availability milestone schedule that support the capability. Describe how the system(s) will be moved either to or within the theater. Identify any lift constraints.

14. Other System Attributes. As appropriate, address attributes that tend to be design, cost and risk drivers, including environmental quality, human

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systems integration (HSI), embedded instrumentation, electronic attack (EA), information protection standards/information assurance (IA), and wartime reserve mode (WARM) requirements. In addition, address conventional and initial nuclear weapons effects; nuclear, biological, and chemical contamination (NBCC) survivability; natural environmental factors (such as climatic, terrain and oceanographic factors); and unplanned stimuli (such as fast cook-off, bullet impact, and sympathetic detonation). Address safety issues regarding hazards of electromagnetic radiation to ordnance (HERO). Define the expected mission capability (e.g., full, percent degraded) in the various environments. Include applicable safety parameters, such as those related to system, nuclear, explosive and flight safety. Identify physical and operational security needs. When appropriate, identify the weather, oceanographic and astrogeophysical support needs throughout the program's expected lifecycle. Include data accuracy and forecast needs. For intelligence, surveillance, and reconnaissance (ISR) platforms, address information protection standards.

15. Program Affordability. The affordability determination is made as part of the cost assessment in the JCIDS analysis. Cost will be included in the CDD as lifecycle cost or, if available, total ownership cost. The cost will include all associated system(s) DOTMLPF costs. Inclusion of cost allows the sponsor to emphasize affordability in the proposed program. In addition, the discussion on affordability should articulate the CDD sponsor funding level estimates for developing, producing, and sustaining the desired capability. The cost figure should be stated in terms of a threshold and objective capability (not necessarily a KPP) to provide flexibility for program evolution and cost as an independent variable (CAIV) tradeoff studies. If cost is identified as a KPP, include it in the KPP summary table. Cite applicable cost analyses conducted to date.

Mandatory Appendices

Appendix A. CRD Crosswalk(s). Formatting instructions are provided in reference h.

Appendix B. Integrated Architecture Products. Include the required Architecture Framework View Products developed, whenever possible, from integrated architectures. Formatting instructions are provided in reference 1.

- Mandatory:
 - AV-1, OV-2, OV-4, OV-5, OV-6C
 - SV-4, SV-5, SV-6
 - Draft IT Standards Profile generated by the DOD IT Standards Registry (DISR) online

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- Initial Interconnectivity and Interoperability Capability (IIC) Profile (Interconnectivity Profile)
 - NR-KPP statement
 - IA Statement of Compliance
 - Key Interface Profile (KIP) Declaration (list of KIPs that apply to system)
- Note: Include only those architectural views not presented in the document.
 - Note: The Joint Staff may waive the requirement for certain architecture views on a case-by-case basis based on the proposed JPD and presence or absence of a NR-KPP.
 - Transition to the NR-KPP will be in accordance with the direction in JROCM 236-03 and reference h.

Appendix C. References

Appendix D. Acronym List

Other Appendices or Annexes. As required to provide supporting information not included in the body of the CDD.

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ENCLOSURE F

CAPABILITY PRODUCTION DOCUMENT (CPD)

1. General

a. The CPD is the sponsor's primary means of providing authoritative, testable capabilities for the Production and Deployment phase of an acquisition program. A CPD is finalized after design readiness review and is validated and approved before the Milestone C acquisition decision (see reference c for DOD space programs). Because a CPD is finalized after design readiness review and after the majority of capability development, it is normally not appropriate to introduce new requirements at this point. New requirements should be included in the next increment in an evolutionary program or in a future modification or upgrade if no additional increments are planned. CPD development is guided by the integrated architectures (as available), applicable CRD, ICD, the CDD, AoA and/or supporting analytical results, developmental and operational test results and the design readiness review. The key documents associated with the CPD are identified in Table F-1.

b. The CPD captures the information necessary to support production, testing, and deployment of an affordable and supportable increment within an acquisition strategy. The CPD provides the operational performance attributes necessary for the acquisition community to produce a single increment of a specific system. It presents performance attributes, including KPP, to guide the production and deployment of the current increment. If the plan requires a single step to deliver the full capability, the KPPs will apply to the entire system(s). There may be cases where the Validation Authority decides it is appropriate to use a combined CPD to describe closely interdependent systems that provide the desired capability. Each increment must provide an operationally effective, suitable and useful capability in the intended environment, commensurate with the investment.

c. The CPD refines the threshold and objective values for performance attributes and KPPs that were validated in the CDD for the production increment. Each production threshold listed in the CPD depicts the minimum performance that the program manager is expected to deliver for the increment based on the system design subsequent to the design readiness review. The refinement of performance attributes and KPPs is the most significant difference between the CDD and the CPD and is discussed further in paragraph 9, below.

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Table F-1. CPD Linkage to Program Documents

Predecessor Documents and Information	Dependent Documents
Joint Operating Concepts (JOC), Joint Functional Concepts (JFC), and Joint Integrating Concepts (JIC)	Acquisition Strategy (Updated for Milestone C)
Design Readiness Review (see reference c for DOD space programs)	Acquisition Program Baseline (APB) for Milestone C of the current increment
System Threat Assessment (STA)	Clinger-Cohen Certification for Major Automated Information Systems (Updated for Milestone C)
Information Support Plan (ISP) (from Milestone B)	DD Form 1494 (required to obtain spectrum certification)
Analysis of Alternatives (AoA) Results	Test and Evaluation Master Plan (updated for Milestone C)
Completed automated system profile as required in reference h	Information Support Plan (ISP) (Updated for Milestone C)
ICD	
CDD	
Integrated Architectures (as available)	
CRDs (until superseded)	

d. As in the CDD, care must be taken to stabilize and not over specify attributes in the CPD. Only the most significant items should be designated as performance attributes with threshold and objective values. To provide the needed performance attributes, the program manager will develop details in the technical documentation.

e. Each CPD applies to a single increment of a single system. When the CPD is part of a FoS or a SoS approach, the CPD will identify the source ICD, AoA and/or supporting analyses results, and any related CDDs/CPDs that are necessary to deliver the required capability and to allow the required program synchronization.

2. CPD Focus. The CPD may refine and revise the required operational capabilities that were listed in the CDD. CPD KPPs must be inserted verbatim into the performance section of the acquisition strategy and the APB. MOE developed for the TEMP and refined during the SDD phase to support Milestone C and focus Initial Operational Test & Evaluation (IOT&E), are based

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on the CPD (for DOD space programs the TEMP is required for Key Decision Point C, see reference c).

3. CPD Development and Documentation

a. The CPD is finalized after completion of the design readiness review. The CPD is an entrance criteria item that is necessary to proceed to each Milestone C acquisition decision (see reference c for DOD space programs).

b. The CPD sponsor will apply lessons learned during the SDD phase, lessons learned from previous increments, risk reduction activities, military utility assessments, experimentation, test and evaluation, modeling and simulation, capability and schedule tradeoffs and affordability analysis in the delivery of the CPD capabilities. The previously defined KPPs may be refined (with a rationale provided) and should be tailored to the proposed system to be procured (e.g., range, probability of kill, platform survivability, timing of the need).

c. The CPD sponsor, in coordination and collaboration with the appropriate DOD Components, agencies, FCB Working Groups, and applicable CRD leads, will prepare the CPD. Continuous collaboration with the systems acquisition program manager is essential. The CPD sponsor also will collaborate with sponsors of related CDDs/CPDs that are required in FoS and SoS solutions, particularly those generated from a common ICD. The CPD will include a description of the operational capability; threat; IT and NSS supportability; links to all applicable integrated architectures (as available); required capabilities; program support; supportability; force structure; DOTMLPF impact and constraints; and schedule and program affordability for the system (revised from the CDD).

d. CPD development should leverage off related analysis and development with the associated Information Support Plan (ISP) required by reference j. As required capabilities are developed, the output from the information needs discovery process (reference j) should help develop the required architecture products and to identify the elements of required program support for inclusion in the CPD.

e. Draft and approved CPDs, both classified and unclassified, should be carefully marked to indicate whether the document is releasable to allies, industry, or the public. Early collaboration should be encouraged whenever possible.

f. CPD format and detailed content instructions are provided at Appendix A of this enclosure.

4. CPD Validation and Approval. The Gatekeeper, described in Enclosure C, will assign a JPD to each CPD. The JPD determines the validation and

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approval authorities for the CPD. Delegation of approval authority will not normally be granted beyond a single increment in an evolutionary acquisition.

5. Certifications. JROC Interest CPDs will receive intelligence; munitions; and IT and NSS interoperability and supportability certifications (in accordance with Enclosure C) prior to JROC validation. Joint Integration CPDs also will receive these certifications before they are returned to the sponsoring component for validation and approval.

6. Formal CPD Staffing. The first step in obtaining validation and approval is the formal review of the document. The staffing process is described in Enclosure C. Supporting documentation, such as the AoA results, ICD, CDD and any additional previously approved documents, should be made available electronically for inclusion in the package. If an AoA has not been conducted, an explanation and an electronic copy of whatever alternative analysis has been performed (or planned) will be made available or attached.

7. CPD Review and Approval. A CPD is written, validated and approved after the design readiness review to support the Milestone C decision for each production increment. Unlike the CDD, the CPD is always specific to a single production increment and is normally not updated.

8. CPD Publication and Archiving. Approved CPDs (Secret and below), regardless of ACAT or JROC Interest designation, will be posted to the KM/DS tool so that all JCIDS documents are maintained in a single location.

9. System Capabilities. The CPD identifies, in threshold-objective format, the specific attributes that contribute most significantly to the desired operational capability. The focus of these attributes is fundamentally different from that of the attributes provided in the CDD. The CDD values were used to guide the acquisition community in making tradeoff decisions between the threshold and objective levels of the stated attributes. After design readiness review, these tradeoff decisions have been made, and a more precise determination of acceptable performance can be stated in the CPD. A range of expected performance, provided by the program manager, is specified in the production threshold and objective values for each attribute or KPP.

a. The production threshold and objective values specified for the attributes in the CPD may be refinements of the development threshold and objective values documented in the CDD. Each production threshold value listed in the CPD represents the minimum performance that the program manager is expected to deliver for the increment based on the post design readiness review.

b. Each production threshold value may be adjusted, as required, to account for post design readiness review estimates, adjusted for manufacturing, technical, and other risks. KPP and non-KPP threshold values

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in the CPD are generally expected to be equal to or better than the corresponding CDD threshold values. However, there may be cases where CDD KPP and/or non-KPP threshold values are reduced in a CPD. When this occurs, the following questions must be answered in the CPD:

- (1) Will the capability still provide sufficient operational effectiveness?
- (2) If the new capability will replace a fielded capability, will it still provide more overall operational effectiveness than the fielded capability?
- (3) Is this proposal still a good way to close the capability gap, or should this approach be abandoned in favor of another materiel or non- materiel alternative?

Additionally, when a CDD KPP threshold is lowered in a CPD, the Validation Authority must be briefed on the answers to these questions before the CPD is approved. Components will budget sufficient funds to achieve all stated production thresholds, as a minimum.

c. In evolutionary acquisition, it is expected that the overall operational effectiveness of a system will improve between increments. This can be realized by increasing threshold values of some or all of the fielded attributes, and/or by adding new attributes to a fielded capability. A decrease in KPP or non-KPP thresholds to accommodate the introduction of an additional capability is not normally desired. There can be cases, however, where this is acceptable as long as the overall operational effectiveness is improved.

d. The production objective value is the desired operational goal for an attribute or KPP in the current increment, beyond which any gain in military utility for the increment does not warrant additional expenditure.

10. Key Performance Parameters. The CPD should contain only those few KPPs (generally eight or fewer) that capture the attributes needed to achieve the overall desired capabilities and should be consistent with the KPPs specified in the CDD.

a. CPD KPPs are inserted verbatim into the performance section of the APB. Interoperability will be a mandatory KPP in every increment for programs that have a NR-KPP.

b. CPD Appendix A should document how the CPD's KPPs are responsive to applicable CRD requirements and KPPs. Refer to reference h for guidance on the recommended format for this crosswalk. For CRDs to be effective, it is essential that all CRD sponsors review all related JROC Interest and Joint Integration CDDs and CPDs for applicability to the FoS or SoS addressed by the CRD. This support is important because CDD/CPD authors cannot in all cases be expected to understand the full impact and scope of every CRD.

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APPENDIX A TO ENCLOSURE F

CAPABILITY PRODUCTION DOCUMENT FORMAT

CLASSIFICATION OR UNCLASSIFIED

CAPABILITY PRODUCTION DOCUMENT

FOR

TITLE

Increment: _____

ACAT: _____

Validation Authority: _____

Approval Authority: _____

Milestone Decision Authority: _____

Designation: JROC Interest/Joint Integration/Independent

Prepared for Milestone C Decision (or specify other acquisition decision point)

Date

Note: Each subparagraph should be numbered to facilitate correlation and traceability and for ease of identifying issues during staffing. CPDs must be submitted in Microsoft Word (6.0 or greater) format. The (SV-6) should be provided as a separate file in Microsoft Excel format for ease of importation into analysis tools. All CPDs must be clearly labeled with draft version number, increment, and date and must include any caveats regarding releasability, even if unclassified. The intent is to share CPDs with allies and industry wherever possible at an appropriate time in the acquisition process. Draft documents will be submitted with line numbers displayed. Architecture products (as available) will be embedded in the Microsoft Word file for ease of review during the staffing process. Ideally, the body of the CPD should be no more than 30 pages long.

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a. Discuss the operating environment of the system.

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b. If the CPD is part of a FoS or SoS solution, discuss the source ICD, and the related CDDs, CPDs, integrating DOTMLPF changes and required synchronization.

c. Cite any additional previously approved JCIDS documents pertaining to the proposed system.

2. Analysis Summary. Summarize the analysis, that is AoA or other support analysis conducted. Include the alternatives, objective, the criteria, assumptions, recommendation and conclusion. Complete detailed documentation of the analysis conducted shall be an attachment.

3. Concept of Operations Summary. Describe what mission areas this capability contributes to, what operational outcomes it provides, what affects it must produce to achieve those outcomes, how it compliments the integrated joint warfighting force and what enabling capabilities are required to achieve its desired operational outcomes.

4. Threat Summary. Summarize the projected threat environment and the specific threat capabilities to be countered. Include the nature of the threat, threat tactics, and projected threat capabilities (both lethal and nonlethal) over time. Programs designated as ACAT ID (or potential ACAT ID) must incorporate DIA-validated threat references. All other programs may use Service intelligence center approved products and data. Summarize the organizational resources that provided threat support to capability development efforts. Contact the DIA's Defense Warning Office, Acquisition Support Division for assistance (DSN: 428-4521; SIPRNET: <http://www.dia.smil.mil/admin/di/dwo/POC.shtml> or JWICS: <http://www.dia.ic.gov/admin/di/dwo/Link.shtml>).

5. Program Summary. Provide a summary of the overall program strategy for reaching full capability and the relationship between the production increment addressed by the current CPD and any other increments of the program.

6. System Capabilities Required for the Current Increment

a. Provide a description for each attribute and list each attribute in a separately numbered subparagraph. Include a supporting rationale for the requirement and cite any analytic references. When appropriate, the description should include any unique operating environments for the system.

b. Present each attribute in output-oriented, measurable and testable terms. For each attribute, provide production threshold and objective values. The program manager can use this information to provide incentives for the production contractor to enhance performance through production improvements.

c. Provide tables summarizing specified KPPs and additional performance attributes in threshold--objective format, as depicted below. Also provide a general discussion of the additional performance attributes.

Table X.X. Example Key Performance Parameter Table

Key Performance Parameter	Production Threshold	Production Objective
KPP 1	Value	Value
KPP 2	Value	Value
KPP 3	Value	Value

Table X.X. Additional Attributes

Attribute	Production Threshold	Production Objective
Attribute	Value	Value
Attribute	Value	Value
Attribute	Value	Value

d. Develop the CPD NR-KPP, in accordance with the procedures described in references h and j, from the integrated architecture (as available) and/or appropriate CRDs.

7. Family of System and System of System Synchronization. In FoS/SoS solutions, the CPD sponsor is responsible for ensuring that related solutions, specified in other CDDs and CPDs, remain compatible and that the development is synchronized. These related solutions should tie to a common ICD. The CPD sponsor is also responsible for ensuring that the CPD accurately captures the desired capabilities described in applicable CRDs.

a. Discuss the relationship of the system described in this CPD to other systems contributing to the capability(s). Discuss any overarching DOTMLPF changes, which are required to make the FoS/SoS an effective military capability.

b. Provide a table that briefly describes the contribution this CPD makes to the capabilities described in the applicable ICDs and the relationships to CDDs and CPDs that also support these capabilities. For these interfaces to be effective, it is essential the CPD sponsor review all related JROC Interest and Joint Integration ICDs, CDDs and CPDs for applicability to the FoS or SoS addressed by this CPD.

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Table X-X. Supported ICDs and Related CDDs/CPDs

Capability	CPD Contribution	Related CDDs	Related CPDs
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c. Each CPD, in Appendix A, will include a crosswalk to the applicable CRDs. The CPD does not need to specify an attribute as a KPP simply because an applicable CRD specifies it as a KPP. Rather, the CPD must show how the attributes specified in the CPD are responsive to applicable CRD standards and KPPs. This includes showing how the attributes support the NR-KPP of the CRD(s).

8. Information Technology and National Security Systems (IT and NSS) Supportability. For systems that receive or transmit information, provide an estimate of the expected bandwidth and quality of service requirements for support of the system(s) (on either a per-unit or an aggregate basis, as appropriate). The estimate provided in the CPD should be a significant improvement over the rough-order-of-magnitude estimate provided in the CDD. The CPD information should be consistent with details provided by the program manager in the ISP that is updated and certified by J-6 for supportability before Milestone C. This description must explicitly distinguish IT and NSS support to be acquired as part of this program from the IT and NSS support to be provided to the acquired system through other systems or programs.

9. Intelligence Supportability. For programs that produce, consume, process or handle intelligence data, requirements for intelligence support must be addressed as the basis for the intelligence certification discussed in Enclosure C. Identify, as specifically as possible, all projected requirements for intelligence products, information or services (throughout all acquisition phases) to include required performance, descriptive or qualitative attributes. Demonstrate that security considerations, such as classification levels and releasability requirements, have been addressed. Contact DIA/J-2 Intelligence Requirements Certification Office (J2P/IRCO) for assistance (DSN 225-4693/1999/8085, SIPRNET <http://www.dia.smil.mil/intel/j2/j2p/irco/main.html> or JWICS http://j2irco.dia.ic.gov/irco/certification_process.html).

10. Electromagnetic Environmental Effects (E3) and Spectrum Supportability. Describe the electromagnetic environment in which the system must operate and coexist with other US, allied, coalition, government and nongovernment

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systems. Identify potential issues regarding E3 interference from threat emitters. For systems that communicate via electromagnetic energy, spectrum certification is necessary to ensure adequate access to the electromagnetic spectrum.

11. Assets Required to Achieve Full Operational Capability (FOC). Describe the types and quantities of assets required to attain FOC. Identify the operational units (including other Services or government agencies, if appropriate) that will employ the capability, and define the asset quantities (including spares, training, and support equipment, if appropriate) required to achieve FOC.

12. Schedule and Initial Operational Capability (IOC)/FOC Definitions. Define the actions that, when complete, will constitute attainment of IOC and FOC for the current increment. Specify the target date for IOC attainment.

13. Other Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) Considerations. Discuss any additional DOTMLPF implications associated with fielding the system that have not already been addressed in the CPD. Describe, at an appropriate level of detail, the key logistics criteria, such as system reliability, maintainability, operational availability and supportability that will help minimize the system's logistics footprint, enhance its mobility and reduce the total ownership cost. Detail any basing needs (forward and main operating bases, institutional training base, and depot requirements). Specify facility, shelter, supporting infrastructure, environmental quality compliance, safety and occupational health requirements and the associated costs and availability milestone schedule that support the capability or system. Describe how the system will be moved either to or within the theater. Identify any lift constraints.

14. Other System Attributes. As appropriate, address attributes that tend to be design, cost, and risk drivers, including environmental quality, HSI, embedded instrumentation, EA, IA, and WARM requirements. In addition, address conventional and initial nuclear weapons effects; and NBCC survivability; natural environmental conditions (such as climatic, terrain, and oceanographic factors); and unplanned stimuli (such as fast cook-off, bullet impact, and sympathetic detonation). Address safety issues regarding HERO. Define the expected mission capability (e.g., full, percent degraded) in the various environments. Include applicable safety parameters, such as those related to system, nuclear, explosive, and flight safety. Identify physical and operational security needs. When appropriate, identify the weather, oceanographic, and astrophysical support needs throughout the program's expected lifecycle. Include data accuracy and forecast needs. For ISR platforms, address information protection standards.

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15. Program Affordability. The affordability determination is made as part of the cost assessment in the JCIDS analysis. Cost will be included in the CPD as life-cycle cost. The cost will include all associated DOTMLPF costs. Inclusion of cost allows the DOD component sponsor to emphasize affordability in the proposed program. In addition, the discussion on affordability should articulate the CPD sponsor's estimates of the appropriate funding level for developing, producing and sustaining the desired capability. The cost figure should be stated in terms of a threshold and objective capability (not necessarily a KPP) to provide flexibility for program evolution and CAIV tradeoff studies. If cost is identified as a KPP, include it in the KPP summary table. Cite applicable cost analyses conducted to date.

Mandatory Appendices

Appendix A. CRD Crosswalk(s). Formatting instructions are provided in reference h.

Appendix B. Integrated Architecture Products. Include the required Architecture Framework View Products developed, whenever possible, from integrated architectures. Formatting instructions are provided in reference 1.

- Mandatory:
 - AV-1, OV-2, OV-4, OV-5, OV-6C
 - SV-4, SV-5, SV-6
 - Final IT Standards Profile generated by the DOD Information Technology Standards Registry (DISRonline)
 - Final Interconnectivity and Interoperability Capability (IIC) Profile (Interoperability Capability Profile)
 - NR-KPP statement
 - IA Statement of Compliance
 - Key Interface Profile (KIP) Declaration (list of the KIPS that apply to the system)
- Note: Include only those architectural views not presented in the document.
- Note: The Joint Staff may waive the requirement for certain architecture views on a case-by-case basis based

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on the proposed JPD and presence or absence of a NR-KPP.

- Transition to the NR-KPP will be in accordance with the direction in JROCM 236-03 and reference h.

Appendix C. References

Appendix D. Acronym List

Other Appendices or Annexes. As required to provide supporting information not included in the body of the CPD.

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ENCLOSURE G

CAPSTONE REQUIREMENTS DOCUMENT (CRD)

1. General

a. As integrated architectures are developed, CRDs will continue to induce the development of interoperable capabilities by providing overarching standards of commonality in and across functional areas, FoS and SoS. In time, most integrated architecture products will not require the CRD in the JCIDS. There may be cases where the JROC directs development of CRDs because the integrated architectures are inappropriate to describe a capability. When the maturity of available integrated architectures is determined by the sponsor and/or the validation authority to be insufficient to ensure the success of a SoS/FoS, the CRD is used to support applicable CDD and CPD. Table G-1 lists the documents that precede or depend on a CRD.

Table G-1. CRD Linkage to Program Documents

Predecessor Documents and Information	Dependent Documents
Joint Operational Concepts (JOC), Joint Functional Concepts (JFC), and Joint Integrating Concepts (JIC)	ICDs
Integrated Architectures (as available)	CDDs
Other CRDs (until superseded)	CPDs
Initial Capabilities Document(s) (ICD), if applicable	
Defense Intelligence Agency Validated Threat Documents	

b. Development of CRDs will be minimized. New CRDs will be initiated only at the direction of the JROC. Creation of a CRD is not necessarily appropriate simply because a number of different systems must interoperate to support a functional area.

c. CRDs should simplify the efforts of CDD and CPD authors by providing testable performance attributes that enable overarching joint force capabilities. Properly developed CRDs are a tool to ensure that new systems reflect the

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future requirements of joint force commanders. They support the premise that it is nearly always more effective and efficient to start out interoperable than to retrofit.

d. CRD leads are assigned by the JROC.

e. Development of Service-specific or component-specific CRDs is highly discouraged. CRDs not approved for development by the JROC will not influence any CDDs or CPDs unless specifically authorized by the JROC.

2. CRD Focus. The CRD's primary focus is to influence future system development to ensure that the systems are conceived and developed to optimize joint capabilities. Approval of a new CRD will not cause previously approved CDDs or CPDs to undergo revision but may influence updates to CDDs and new CPDs for future increments of a program.

3. CRD Development and Documentation

a. A recommendation to develop a CRD is appropriate when analysis identifies a significant gap in FoS/SoS capabilities documentation or integrated architecture development and if a CRD will provide valuable information that is needed to ensure articulation of overarching guidance to CDD and CPD sponsors.

b. The CRD sponsor, in coordination and collaboration with the appropriate DOD Components, agencies, FCB Working Groups, and applicable CRD leads, will prepare the CRD. The CRD is a living document that is reviewed at least annually and updated or retired as appropriate.

c. Draft and approved CRDs, both classified and unclassified, should be carefully marked to indicate whether the document is releasable to allies, industry, or the public. Early collaboration should be encouraged whenever possible.

d. CRD format and detailed content instructions are provided at Appendix A of this enclosure. CRDs previously approved by the JROC are not required to undergo revision to comply with the revised format unless they are updated.

4. CRD Validation and Approval. The JROC will review, validate and approve all CRDs. All CRDs are designated as JROC Interest. The JROC may retain approval authority over CRDs (i.e., no changes of any kind allowed without consent of the JROC) or may delegate approval authority for non-key performance parameter (KPP) changes to a component. JROC review of CRDs is required any time a recommendation is made to change a CRD KPP.

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5. Certifications. CRDs will receive intelligence; munitions; and IT and NSS interoperability and supportability certifications, as required, in accordance with Enclosure C before JROC validation.

6. Formal CRD Staffing. The first step in obtaining validation and approval is the formal review of the document. The staffing process is described in Enclosure C. Supporting documentation should be made available electronically for inclusion in the staffing package.

7. CRD Review, Revalidation and Retirement. CRDs that have already been approved by the JROC will continue to be valid until they are revised or absorbed into appropriate integrated architectures and retired. The CRD lead will review each assigned CRD at least annually and either retain, update or retire, as appropriate. Updates that modify KPPs require staffing and validation by the JROC. JROCM 176-03 provides a list of the CRDs approved for continuing use and points of contact from the CRD lead organization. It also provides a list of those CRDs approved for future development. This JROCM will be maintained on the JROC home page and in the JROC KM/DS tool to facilitate CDD and CPD crosswalks. It will be updated as required.

8. CRD Publication and Archiving. Following CRD approval, the JROC Chairman will forward a JROCM recording their approval to the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), the Assistant Secretary of Defense for Networks and Information Integration (ASD(NII)), the Under Secretary of the Air Force (USecAF) and other appropriate MDAs for their information. All approved CRDs (Secret and below) will be posted to the KM/DS tool.

9. FoS/SoS Capabilities. The CRD will identify, in threshold-objective format, the measurable attributes that contribute most significantly to the desired operational capability. When specific values for attribute threshold and objective values are not defined, the attribute must be described in sufficient detail to allow CDD and CPD developers to use the information in developing capabilities.

a. The Capstone threshold value is the minimum acceptable performance level for an attribute or a KPP across the entire FoS/SoS. If the threshold varies over time, the time phasing must be provided. This helps in prioritizing the development of the capabilities of individual systems for production.

b. The Capstone objective value is the optimum performance goal for an attribute or KPP across the entire FoS/SoS, beyond which any gain in military utility does not warrant additional expenditure. The Capstone objective is provided to harmonize disparate systems within the FoS/SoS toward a common goal.

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10. Capstone Key Performance Parameters. Capstone KPPs are system attributes so significant that they are essential for defining the FoS/SoS required capabilities. The CRD should contain only those few KPPs (generally eight or fewer) that capture the attributes needed to reach the overall desired capabilities for the FoS/SoS and to provide focus to CDD/CPD sponsors.

a. The CDDs/CPDs under the CRD must address the CRD KPPs relevant to the capabilities they support. CDDs/CPDs are not expected to address a CRD KPP if it does not apply to the proposed system(s). It is not necessary to have a one-to-one relationship between CRD KPPs and CDD/CPD KPPs to demonstrate responsiveness to the CRD. The CRD lead must, however, be satisfied that the CDD/CPD attributes and KPPs adequately address the applicable CRDs given the Department's overall program strategy. The CDD/CPD sponsor will perform a crosswalk to all CRD attributes and KPPs. The sponsor will then document this crosswalk in Appendix A of the CDD/CPD (as described in Enclosures E and F). The CRD lead will assist the CDD/CPD sponsor during document development, providing testable, affordable measures of any applicable CRD attributes or KPPs and will advise the validation authority of any issues during the staffing and approval process.

b. Capstone KPP Development. Selection of valid KPPs requires more than simply identifying an attribute and providing threshold and objective values. A KPP should be a rollup of a number of supporting attributes listed in the CRD. All CRDs will include an IT and NSS NR-KPP at a minimum. The following is one methodology used for developing CRD KPPs. (This methodology does not apply to the interoperability KPP, which is described in paragraph 11.)

(1) Step 1. List the Capstone attributes for each operational element identified under operational capabilities, as described in paragraph 1.

(2) Step 2. Prioritize (and time-phase) the supporting attributes for each element.

(3) Step 3. For each operational element, build one measurable performance attribute that captures the essence of the attributes of the element.

(4) Step 4. Determine the attributes that are most critical to the CRD functional area and designate them, with a supporting rationale, as Capstone KPPs. (Note: It may not be necessary to create or generate a Capstone KPP for all operational elements identified. In contrast, one operational element may generate two or more Capstone KPPs, if appropriate.)

(5) Step 5. If any of the Capstone KPPs apply to every system or to specific systems in the FoS/SoS (as opposed to the aggregate capability of the FoS/SoS), then indicate which ones and provide additional detail and a supporting rationale, as appropriate.

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11. Capstone Net-Ready KPP. A mandatory Capstone Net-Ready KPP (NR-KPP) must address information interoperability. The basis for this Capstone NR-KPP is the information exchange of the FoS/SoS. They should reflect the information needs that are necessary for the system under consideration and the information that this new capability can provide to enhance fielded systems. Inclusion of the SV-6 is strongly encouraged, as available. The development of the NR-KPP should cover the FoS/SoS's communication requirements for command and control, as well as intelligence support. The existence of a Capstone NR-KPP can be particularly valuable to the DOD Components, greatly simplifying both architecture and CDD/CPD development in support of systems in the FoS/SoS. Further details are provided in reference h.

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APPENDIX A TO ENCLOSURE G

CAPSTONE REQUIREMENTS DOCUMENT FORMAT

CLASSIFICATION OR UNCLASSIFIED

CAPSTONE REQUIREMENTS DOCUMENT

FOR

TITLE

Designation: JROC Interest
[Note: All CRDs are designated as JROC Interest]

Date

Note: Each subparagraph should be numbered to facilitate correlation and traceability and for ease of identifying issues during staffing. CRDs must be submitted in Microsoft Word (6.0 or greater) format. The IER matrix (OV-3) should be embedded in the Microsoft Word file and provided as a separate file in Microsoft Excel format for ease of importation into analysis tools. All CRDs must be clearly labeled with draft version number, increment, and date and must include any caveats regarding releasability, even if unclassified. The intent is to share CRDs with allies and industry wherever possible. Draft documents will be submitted with line numbers displayed. Architecture products (as available) will be embedded in the Microsoft Word file for ease of review during the staffing process. Ideally, the body of the CRD should be no more than 30 pages long.

Executive Summary (2 pages maximum)

Revision History

Table of Contents (with list of tables, figures, and appendices)

Points of Contact

1. Capability/Functional Area Discussion. Describe the capability that the SoS or FoS delivers and how it relates to applicable JOC, JFCs, JICs, and integrated architectures.

- a. Discuss the operating environment of the FoS or SoS.
- b. Cite previously approved documents pertaining to the proposed CRD. State whether the proposed CRD will supersede any other CRDs.
- c. Describe the CRD analysis and development process and list the DOD Components that participated.

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d. Summarize the FoS/SoS concept, including the applicable functional and operating concepts.

e. Provide general and specific guidance on suitability, infrastructure support, intelligence and other support considerations.

2. Threat Summary. Summarize the projected threat environment and the specific threat capabilities to be countered. Include the nature of the threat, threat tactics and projected threat capabilities (both lethal and nonlethal) over time. Reference the current DIA and Service intelligence production center approved products or data. Summarize the organizational resources that provided threat support to capability development efforts. (Contact the DIA's Defense Warning Office, Acquisition Support Division for assistance (DSN: 428-4521; SIPRNET: <http://www.dia.smil.mil/admin/di/dwo/POC.shtml> or JWICS: <http://www.dia.ic.gov/admin/di/dwo/Link.shtml>))

3. Shortcomings in Functional Area Guidance. Describe any shortcomings in or absence of overarching guidance describing or fulfilling the capabilities of the functional area(s).

4. System of Systems and Family of Systems Capabilities

a. Provide a description of each Capstone attribute and list each attribute in a separate numbered subparagraph. Include a supporting rationale for the attributes, indicating how it supports the integration of capabilities in and across functional areas, and cite any analytic references. When specific values for attribute thresholds and objectives are not defined, the attribute must be described in sufficient detail to allow CDD and CPD developers to use the information in developing capabilities. When appropriate, the description should include any unique operating environments.

b. Present each attribute in output-oriented, measurable terms. For each attribute, provide Capstone threshold and Capstone objective values. If the objective and the threshold values are the same, indicate this by including the statement "Threshold = Objective." If the attribute is to apply to all systems in the FoS/SoS (as opposed to the aggregate of systems in the FoS/SoS), provide this information, with a rationale, and ensure that this attribute is measurable and testable.

c. Discuss the time-phased nature of the attribute and the events driving the need to satisfy the threshold value.

d. Provide tables summarizing all Capstone KPPs and additional Capstone performance attributes in threshold--objective format, as shown below. Also provide a general discussion of the additional performance attributes.

Table X.X. Example Capstone Key Performance Parameter Table

Capstone Key Performance Parameter	Capstone Threshold	Capstone Objective
Capstone KPP 1	Value	Value
Capstone KPP 2	Value	Value
Capstone KPP 3	Value	Value

Table X.X. Additional Capstone Attributes

Capstone Attribute	Capstone Threshold	Capstone Objective
Attribute	Value	Value
Attribute	Value	Value
Attribute	Value	Value

e. Develop the CRD NR-KPP, in accordance with procedures described in reference h.

5. Capability Development Document (CDD)/Capability Production Document (CPD) Interface(s). The CRD lead(s) and subsequent CDDs/CPDs sponsors have a responsibility to ensure that the CDDs/CPDs accurately capture applicable CRDs. To help CDD/CPD authors perform this crosswalk on a consistent basis, the CRD will include a sample attributes crosswalk matrix to be filled in by the CDD/CPD sponsor and included as an appendix to the CDD/CPD. For the CDD/CPD interface to be effective, it is essential that CRD leads review all related JROC Interest and Joint Integration CDDs and CPDs for applicability to the FoS/SoS addressed by the CRD. This support is important because CDD/CPD authors may not understand the full impact and scope of every CRD.

6. Related, Supporting, and Supported Systems and Programs. Discuss interfacing systems and how the timing of these systems works with the FoS/SoS addressed in the CRD to deliver a warfighting capability.

7. Other Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) Considerations. Discuss any additional DOTMLPF implications associated with fielding of the FoS/SoS that have not already been addressed in the CRD. Describe any overarching basing (forward and main operating bases), facility, shelter, supporting infrastructure, environmental quality compliance, safety and occupational health considerations. Identify any other special considerations.

Mandatory Appendices

Appendix A. Listing of CRD Supporting Analysis

Appendix B. Integrated Architecture Products. Include the required Architecture Framework View Products developed, whenever possible, from integrated architectures. Formatting instructions are provided in reference 1.

- Mandatory -- OV-1 and OV-5 (an OV-3 will be required for legacy CRDs)

Appendix C. References

Appendix D. Acronym List

Appendix E. Glossary

Appendix F. Sample CDD/CPD to CRD Crosswalk. Reference instructions provided in reference h. The crosswalk needs to address not only the NR-KPP, but other capabilities/KPPs identified in the CRDs as well.

Other Appendices or Annexes. As required to provide supporting information not included in the body of the CRD.

ENCLOSURE H

REFERENCES

- a. CJCSI 3170.01 Series, "Joint Capabilities Integration and Development System."
- b. DOD Instruction 5000.2, 12 May 2003, "Operation of the Defense Acquisition System."
- c. National Security Space Acquisition Policy 03-01, 6 October 2003, "Guidance for DOD Space System Acquisition Process."
- d. CJCSI 3180.01 Series, "Joint Requirements Oversight Council (JROC) Programmatic Processes for Joint Experimentation and Joint Resource Change Recommendations."
- e. Acquisition Knowledge Sharing System (AKSS), "Acquisition Deskbook," <http://deskbook.dau.mil/jsp/default.jsp>.
- f. DOD Directive 8100.1, 19 September 2002, "Global Information Grid (GIG) Overarching Policy."
- g. DOD 5200.1-PH, April 1997, "DOD Guide to Marking Classified Documents."
- h. CJCSI 6212.01 Series, "Interoperability and Supportability of Information Technology and National Security Systems."
- i. DOD Directive 4630.5 Series, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)."
- j. DOD Instruction 4630.8 Series, "Procedures for Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)."
- k. JROCM 098-00, 25 May 2000, "JROC Administrative Guide."
- l. "DOD Architecture Framework," October 2003.
- m. DOD Directive 5000.1, 12 May 2003, "The Defense Acquisition System."

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GLOSSARY

PART I -- ACRONYMS

ACAT	acquisition category
AMA	analysis of materiel approaches
AoA	analysis of alternatives
APB	Acquisition Program Baseline
ASD(HA)	Assistant Secretary of Defense (Health Affairs)
ASD(NII)	Assistant Secretary of Defense for Networks and Information Integration
AV	All Views
C4	command, control, communications and computers
C4I	command, control, communications, computers and intelligence
C4ISR	command, control, communications, computers, intelligence, surveillance and reconnaissance
CAD	Capabilities and Acquisition Division
CDD	Capability Development Document
CIO	Chief Information Officer
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
CPD	Capability Production Document
CRD	Capstone Requirements Document
DIA	Defense Intelligence Agency
DOD	Department of Defense
DODD	Department of Defense directive
DODI	Department of Defense instruction
DOT&E	Director of Operational Test and Evaluation

DOTMLPF	doctrine, organization, training, materiel, leadership and education, personnel and facilities
E3	electromagnetic environmental effects
EA	electronic attack
FAA	functional area analysis
FCB	Functional Capabilities Board
FNA	functional needs analysis
FOC	Full Operational Capability
FoS	family of systems
FSA	functional solution analysis
HSI	human systems integration
IA	information assurance
ICD	Initial Capabilities Document
IER	information exchange requirement
IOC	Initial Operational Capability
IOT&E	Initial Operational Test and Evaluation
ISP	Information Support Plan
ITWA	Initial Threat Warning Assessment
JCB	Joint Capabilities Board
JCIDS	Joint Capabilities Integration and Development System
JFC	Joint Functional Concept
JIC	Joint Integrating Concept
JOC	Joint Operating Concept
JPD	joint potential designator
JROC	Joint Requirements Oversight Council
JROCM	JROC memorandum

KDP	Key Decision Point
KIP	Key Interface Profiles
KM/DS	Knowledge Management/Decision Support
KPP	key performance parameter
MCEB	Military Communications Electronics Board
MDA	Milestone Decision Authority
MOE	measures of effectiveness
MRB	Mission Requirements Board
NBCC	nuclear, biological, and chemical contamination
NGA	National Geospatial Intelligence Agency
NR-KPP	Net-Ready Key Performance Parameter
NRO	National Reconnaissance Office
NSA	National Security Agency
NSS	National Security Systems
OV	operational view
PA&E	Program Analysis and Evaluation
SDD	System Development and Demonstration
SOCOM	Special Operations Command
SoS	system of systems
SPG	Strategic Planning Guidance
SV	systems view
TEMP	Test and Evaluation Master Plan
TV	technical view
UJTL	Universal Joint Task List
USecAF	Under Secretary of the Air Force

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USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics
USD(I)	Under Secretary of Defense for Intelligence
WARM	wartime reserve mode

PART II — DEFINITIONS

Acquisition Category (ACAT) - Categories established to facilitate decentralized decision-making and execution, and compliance with statutorily imposed requirements. The categories determine the level of review, decision authority and applicable procedures. Reference b provides the specific definition for each acquisition category.

Acquisition Program Baseline (APB) - Each program's APB is developed and updated by the program manager and will govern the activity in the phase succeeding the milestone for which it was developed.

All Views (AV) - An architecture view that provides a summary and overview information. It describes the scope, purpose, intended users, environment depicted, analytical findings associated with the architecture.

analysis of alternatives (AoA) - The evaluation of the operational effectiveness, operational suitability and estimated costs of alternative systems to meet a mission capability. The analysis assesses the advantages and disadvantages of alternatives being considered to satisfy capabilities, including the sensitivity of each alternative to possible changes in key assumptions or variables.

analysis of materiel approaches (AMA) - The JCIDS analysis to determine the best materiel approach or combination of approaches to provide the desired capability or capabilities. Though the AMA is similar to an AoA, it occurs earlier in the analytical process. Subsequent to approval of an ICD, which may lead to a potential ACAT I/IA program, D, PA&E provides specific guidance to refine this initial AMA into an AoA.

approval - The formal or official sanction of the identified capability described in the capability documentation. Approval also certifies that the documentation has been subject to the uniform process established by the DOD 5000 series.

architecture - The structure of components, their relationships, and the principles and guidelines governing their design and evolution over time.

attribute - A testable or measurable characteristic that describes an aspect of a system or capability.

capability - The ability to execute a specified course of action. It is defined by an operational user and expressed in broad operational terms in the format of an initial capabilities document or a DOTMLPF change recommendation. In the case of material proposals, the definition will progressively evolve to DOTMLPF performance attributes identified in the CDD and the CPD.

Capability Development Document (CDD) - A document that captures the information necessary to develop a proposed program(s), normally using an evolutionary acquisition strategy. The CDD outlines an affordable increment of militarily useful, logistically supportable and technically mature capability.

capability gaps - Those synergistic resources that are unavailable but potentially attainable to the operational user for effective task execution. These resources may come from the entire range of DOTMLPF solutions.

Capability Production Document (CPD) - A document that addresses the production elements specific to a single increment of an acquisition program.

Capstone Requirements Document (CRD) - A document that contains capabilities-based requirements that facilitates the development of CDDs and CPDs by providing a common framework and operational concept to guide their development.

certification - A statement of adequacy provided by a responsible agency for a specific area of concern in support of the validation process.

comment priorities -

a. Critical - A critical comment indicates nonconcurrence in the document, for both the O-6 and flag review, until the comment is satisfactorily resolved.

b. Substantive - A substantive comment is provided because a section in the document appears to be or is potentially unnecessary, incorrect, misleading, confusing, or inconsistent with other sections.

c. Administrative - An administrative comment corrects what appears to be a typographical, format, or grammatical error.

DOD Component - The DOD Components consist of the Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the combatant commands, the Office of the Inspector General of the Department of Defense, the Defense agencies, DOD field activities, and all other organizational entities within the Department of Defense.

DOD 5000 Series - DOD 5000 series refers collectively to DODD 5000.1 and DODI 5000.2, references m and b, respectively.

electromagnetic environmental effects (E3) - The impact of the electromagnetic environment upon the operational capability of military forces, equipment, systems and platforms.

embedded instrumentation - Data collection and processing capabilities, integrated into the design of a system for one or more of the following uses: diagnostics, prognostics, testing or training.

environmental quality - The condition of the following elements that make up the environment: flora, fauna, air, water, land and cultural resources.

evolutionary acquisition - DOD's preferred strategy for rapid acquisition of mature technology for the user. An evolutionary approach delivers capability in increments, recognizing up front, the need for future capability improvements.

family of systems (FoS) - A set or arrangement of independent systems that can be arranged or interconnected in various ways to provide different capabilities.

The mix of systems can be tailored to provide desired capabilities, dependent on the situation. An example of a FoS would be an anti-submarine warfare FoS consisting of submarines, surface ships, aircraft, static and mobile sensor systems and additional systems. Although these systems can independently provide militarily useful capabilities, in collaboration they can more fully satisfy a more complex and challenging capability: to detect, localize, track and engage submarines.

functional area - A broad scope of related joint warfighting skills and attributes that may span the range of military operations. Specific skill groupings that make up the functional areas are approved by the JROC.

Functional Capabilities Board (FCB) - A permanently established body that is responsible for the organization, analysis and prioritization of joint warfighting capabilities within an assigned functional area.

human systems integration - Defined in reference b, includes the integrated and comprehensive analysis, design and assessment of requirements, concepts and resources for system manpower, personnel, training, safety and occupational health, habitability, personnel survivability and human factors engineering.

increment - A militarily useful and supportable operational capability that can be effectively developed, produced or acquired, deployed and sustained. Each increment of capability will have its own set of threshold and objective values set by the user.

information assurance (IA) - Information operations that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality and non-repudiation. This includes providing for restoration of information systems by incorporating protection, detection and reaction capabilities.

Information Support Plan (ISP) - The ISP shall describe system dependencies and interface requirements in sufficient detail to enable testing and verification of IT and NSS interoperability and supportability requirements. The ISP shall also include IT and NSS systems interface descriptions, infrastructure and support requirements, standards profiles, measures of performance, and interoperability shortfalls.

Information Technology (IT) - Any equipment, or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission or reception of data or information by the executive agency. This includes equipment used by a Component directly, or used by a contractor under a contract with the Component, which (i) requires the use of such equipment, or (ii) requires the use, to a significant extent, of such equipment in the performance of a service or the furnishing of a product. The term "IT" also includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources.

Notwithstanding the above, the term “IT” does not include any equipment that is acquired by a Federal contractor incidental to a Federal contract. The term “IT” includes NSS.

Initial Capabilities Document (ICD) - Documents the need for a materiel approach to a specific capability gap derived from an initial analysis of materiel approaches executed by the operational user and, as required, an independent analysis of materiel alternatives. It defines the capability gap in terms of the functional area, the relevant range of military operations, desired effects and time. The ICD summarizes the results of the DOTMLPF analysis and describes why nonmateriel changes alone have been judged inadequate in fully providing the capability.

insensitive munitions - Munitions that minimize the probability of inadvertent initiation and the severity of subsequent collateral damage as a result of unplanned, external stimuli.

integrated architectures - An architecture consisting of multiple views or perspectives (operational view, systems view, and technical view) that facilitates integration and promotes interoperability across capabilities and among related integrated architectures.

interoperability - The ability of systems, units or forces to provide data, information, materiel and services to and accept the same from other systems, units or forces and to use the data, information, materiel and services so exchanged to enable them to operate effectively together. IT and NSS interoperability includes both the technical exchange of information and the end-to-end operational effectiveness of that exchanged information as required for mission accomplishment.

Joint Capabilities Board (JCB) - The JCB functions to assist the JROC in carrying out its duties and responsibilities. The JCB reviews and, if appropriate, endorses all JCIDS and DOTMLPF proposals prior to their submission to the JROC. The JCB is chaired by the Joint Staff, J-8, Director of Force Structure, Resources, and Assessment. It is comprised of Flag/General officer representatives of the Services.

joint experimentation - An iterative process for developing and assessing concept-based hypotheses to identify and recommend the best value-added solutions for changes in DOTMLPF required to achieve significant advances in future joint operational capabilities.

Joint Force - The term “Joint Force” in its broadest sense refers to the Armed Forces of the United States. The term “joint force” (lower case) refers to an element of the Armed Forces that is organized for a particular mission or task. Because this could refer to a joint task force or a unified command, or some yet unnamed future joint organization, the more generic term “a joint force” will be used, similar in manner to the term “joint force commander” in reference to the commander of any joint force.

Joint Functional Concepts (JFC) - An articulation of how a future joint force commander will integrate a set of related military tasks to attain capabilities required across the range of military operations. Although broadly described within the Joint Operations Concepts, they derive specific context from the joint operating concepts and promote common attributes in sufficient detail to conduct experimentation and measure effectiveness.

Joint Integrating Concept (JIC) - A JIC describes how a joint force commander integrates functional means to achieve operational ends. It includes a list of essential battlespace effect (including essential supporting tasks, measures of effectiveness, and measures of performance) and a CONOPS for integrating these effects together to achieve the desired endstate.

Joint Operating Concept (JOC) - An articulation of how a future joint force commander will plan, prepare, deploy, employ and sustain a joint force against potential adversaries' capabilities or crisis situations specified within the range of military operations. JOCs guide the development and integration of JFCs to provide joint capabilities. They articulate the measurable detail needed to conduct experimentation and allow decision makers to compare alternatives.

Joint Operations Concepts (JOpsC) - A concept that describes how the Joint Force intends to operate 15 to 20 years from now. It provides the operational context for the transformation of the Armed Forces of the United States by linking strategic guidance with the integrated application of joint force capabilities.

joint potential designator (JPD) - A designation assigned by the Gatekeeper to specify JCIDS validation, approval and interoperability expectations.

a. "JROC Interest" designation will apply to all ACAT I/IA programs and ACAT II and below programs where these capabilities have a significant impact on joint warfighting. This designation may also apply to intelligence capabilities that support DOD and national intelligence requirements. These documents will be staffed through the JROC for validation and approval. All CRDs will be designated as JROC Interest. DOTMLPF change proposals will also be designated as JROC Interest in accordance with reference d.

b. "Joint Integration" designation will apply to ACAT II and below programs where the concepts and/or systems associated with the document do not significantly affect the joint force and an expanded review is not required, but IT and NSS interoperability, intelligence or munitions certification is required. Once the required certification(s) are completed, the proposal may be reviewed by the FCB. Joint Integration proposals are validated and approved by the sponsoring component.

c. "Independent" designation will apply to ACAT II and below programs where the concepts and/or systems associated with the document do not significantly affect the joint force, an expanded review is not required, and no certifications are required. Once designated Independent, the FCB may review

the proposal. These documents are returned to the sponsoring component for validation and approval.

Joint Requirements Oversight Council memorandum (JROCM) - Official JROC correspondence generally directed to an audience(s) external to the JROC. JROCMs are usually decisional in nature.

Key Decision Points (KDP) - Major decision points that separate the phases of a DOD space program.

Key Interface Profiles (KIPs) - KIPs provide a net-centric oriented approach for managing interoperability across the GIG based on the configuration control of key interfaces. The KIP is the set of documentation produced as a result of interface analysis which: designates an interface as key; analyzes it to understand its architectural, interoperability, test and configuration management characteristics; and documents those characteristics in conjunction with solution sets for issues identified during the analysis. GIG KIPs provide a description of required operational functionality, systems functionality and technical specifications for the interface. The profile consists of refined operational and systems view products, Interface Control Document/Specifications, Engineering Management Plan, Configuration Management Plan, Technical Standards View (TV-1) with Systems View (SV)-TV Bridge, and procedures for standards conformance and interoperability testing.

key performance parameters (KPP) - Those minimum attributes or characteristics considered most essential for an effective military capability. KPPs are validated by the JROC for JROC Interest documents, and by the DOD Component for Joint Integration or Independent documents. CDD and CPD KPPs are included verbatim in the APB.

lead DOD Component - The Service or agency that has been formally designated as lead for a joint program by the MDA. The lead component is responsible for common documentation, periodic reporting and funding actions.

logistic support - Logistic support encompasses the logistic services, materiel and transportation required to support the continental United States-based and worldwide-deployed forces.

materiel solution - A defense acquisition program (nondevelopmental, modification of existing systems, or new program) that satisfies, or is a primary basis for satisfying identified warfighter capabilities. In the case of FoS and SoS approaches, an individual materiel solution may not fully satisfy a necessary capability gap on its own.

measures of effectiveness (MOE) - A qualitative or quantitative measure of a system's performance or a characteristic that indicates the degree to which it performs the task or meets a requirement under specified conditions. MOEs should be established to measure the system's capabilities to produce or accomplish the desired result.

Milestones - Major decision points that separate the phases of an acquisition program.

Milestone Decision Authority (MDA) - The individual designated, in accordance with criteria established by the USD(AT&L), by the ASD(NII) for automated information system acquisition programs or by the USecAF (as the DOD Space MDA) for space programs to approve entry of an acquisition program into the next phase.

military department - A department headed by a civilian Secretary appointed by the President and includes a Military Service (the Department of the Navy includes two Services).

militarily useful capability - A capability that achieves military objectives through operational effectiveness, suitability and availability, which is interoperable with related systems and processes, transportable and sustainable when and where needed, and at costs known to be affordable over the long term.

Mission Requirements Board - The Mission Requirements Board manages the national requirements process that reviews, validates and approves national requirements for future intelligence capabilities and systems. It is the senior validation and approval authority for future intelligence requirements funded within the National Foreign Intelligence Program (NFIP), and provides advice and council on future requirements funded outside the NFIP.

National Security Systems (NSS) - Telecommunications and information systems, operated by the DOD -- the functions, operation or use of which involves (1) intelligence activities, (2) cryptologic activities related to national security, (3) the command and control of military forces, (4) equipment that is an integral part of a weapon or weapons systems, or (5) is critical to the direct fulfillment of military or intelligence missions. Subsection (5) in the preceding sentence does not include procurement of automatic data processing equipment or services to be used for routine administrative and business applications (including payroll, finance, logistics and personnel management applications).

Net-Ready Key Performance Parameter (NR-KPP) - The NR-KPP assesses information needs, information timeliness, information assurance, and net-enabled attributes required for information exchange and use. The NR-KPP consists of measurable and testable characteristics and/or performance metrics required for the timely, accurate, and complete exchange and use of information to satisfy information needs for a given capability. The NR-KPP is comprised of the following elements: compliance with the Net-Centric Operations and Warfare (NCOW) Reference Model (RM); compliance with applicable Global Information Grid (GIG) Key Interface Profiles (KIPs); verification of compliance with DOD information assurance requirements; and supporting integrated architecture products required to assess information exchange and use for a given capability.

nonmateriel solution - Changes in doctrine, organization, training, leadership and education, personnel or facilities to satisfy identified functional capabilities.

objective value - The desired operational goal associated with a performance attribute, beyond which any gain in utility does not warrant additional expenditure. The objective value is an operationally significant increment above the threshold. An objective value may be the same as the threshold when an operationally significant increment above the threshold is not significant or useful.

operational effectiveness - Measure of the overall ability to accomplish a mission when used by representative personnel in the environment planned or expected for operational employment of the system considering organization, doctrine, tactics, supportability, survivability, vulnerability, and threat.

operational suitability - The degree to which a system can be placed and sustained satisfactorily in field use with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime usage rates, maintainability, safety, human factors, habitability, manpower, logistics, supportability, logistics supportability, natural environment effects and impacts, documentation and training requirements.

operational view (OV) - An architecture view that describes the joint capabilities that the user seeks and how to employ them. The OVs also identify the operational nodes, the critical information needed to support the piece of the process associated with the nodes, and the organizational relationships.

operator - An operational command or agency that employs the acquired system for the benefit of users. Operators may also be users.

sponsor - The DOD component responsible for all common documentation, periodic reporting, and funding actions required to support the capabilities development and acquisition process for a specific capability proposal.

sustainability - The ability to maintain the necessary level and duration of operational activity to achieve military objectives. Sustainability is a function of providing for and maintaining those levels of ready forces, materiel and consumables necessary to support military effort.

sustainment - The provision of personnel, logistic, and other support required to maintain and prolong operations or combat until successful accomplishment or revision of the mission or of the national objective.

synchronization - The process of coordinating the timing of the delivery of capabilities, often involving different initiatives, to ensure the evolutionary nature of these deliveries satisfies the capabilities needed at the specified time that they are needed. Synchronization is particularly critical when the method of achieving these capabilities involves a FoS or SoS approach.

system of systems (SoS) - A set or arrangement of interdependent systems that are related or connected to provide a given capability. The loss of any part of the system will degrade the performance or capabilities of the whole. An example of a SoS could be interdependent information systems. While individual systems within the SoS may be developed to satisfy the peculiar needs of a given user group (like a specific Service or agency), the information they share is so important that the loss of a single system may deprive other systems of the data needed to achieve even minimal capabilities.

systems view (SV) - An architecture view that identifies the kinds of systems, how to organize them, and the integration needed to achieve the desired operational capability. It will also characterize available technology and systems functionality.

task - A discrete event or action that enables a mission or function to be accomplished by individuals or organizations. Tasks are based upon doctrine, tactics, techniques, and procedures, or an organization's standard operating procedures, and are generated by mission analysis.

technical view (TV) - An architecture view that describes how to tie the systems together in engineering terms. It consists of standards that define and clarify the individual systems technology and integration requirements.

threshold value - A minimum acceptable operational value below which the utility of the system becomes questionable.

user - An operational command or agency that receives or will receive benefit from the acquired system. Combatant commanders and their Service Component commands are the users. There may be more than one user for a system. Because the Service Component commands are required to organize, equip and train forces for the combatant commanders, they are seen as users for systems. The Chiefs of the Services and heads of other DOD Components are validation and approval authorities and are not viewed as users.

user representative - A command or agency that has been formally designated by proper authority to represent single or multiple users in the capabilities and acquisition process. The Services and the Service components of the combatant commanders are normally the user representatives. There should only be one user representative for a system.

validation - The review of documentation by an operational authority other than the user to confirm the operational capability. Validation is a precursor to approval.

Validation Authority - The individual within the DOD components charged with overall capability definition and validation of the threshold and objective values of KPPs. The Vice Chairman of the Joint Chiefs of Staff, in the role as the Chairman of the JROC, is the Validation Authority for all potential major defense acquisition programs. The Validation Authority for JCIDS issues is dependent upon the JPD of the program or initiative as specified below:

- a. JROC Interest - The JROC is the Validation Authority.
- b. Joint Integration - The sponsor is the Validation Authority.
- c. Independent - The sponsor is the Validation Authority.

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